American Journal of

PUBLIC HEALTH

and The Nation's Health

FEBRUARY, 1956

volume 46

number 2

P-38 Dacro Milk Caps

Housewives

like the protection and convenience of P-38 Dacro, and particularly the fact that it's an excellent re-seal.

Dairy Operators

like its unmatched plant economy and the way it makes their bottling operation more profitable.

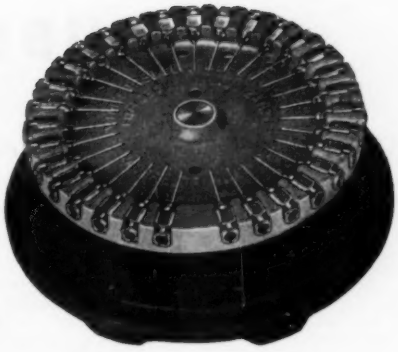
- Forms an air-tight seal
- Completely covers the pouring lip
- A perfect re-seal time after time

CROWN

Crown Cork & Seal Company, Inc. Dacro Sales, Baltimore 3, Maryland

NEW!

FOR MASS IMMUNIZATION!



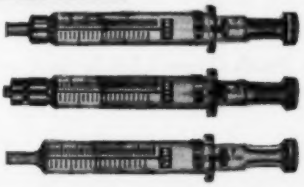
VIM FORSBECK NEEDLE HOLDER WITH PORCELAIN WHEEL

New glazed porcelain needle holder accommodates 28 VIM needles. Highly resistant to heat and chemicals, new unit may be sterilized by boiling, autoclaving, or dry heat. Needle can be attached to syringe with slight twist and forward pressure and replaced after injection without hand contact. Rack may be removed from base by handle and replaced by second filled rack without delay.

VIM HYPODERMIC NEEDLES

Three complete lines — VIM Laminex, Vim Stainless Steel and Damascus.

VIM HYPODERMIC SYRINGES



A wide range of syringe selection, including VIM standard ground, VIM interchangeable and Damascus syringes.

For complete data, write to

MacGREGOR INSTRUMENT COMPANY, NEEDHAM, MASS.

American Journal of

PUBLIC HEALTH

and the Nation's Health

Official Monthly Publication of the American Public Health Association, Inc.

Volume 46 | February, 1956 | Number 2

ABEL WOLMAN, DR.ENG., Editor
RAYMOND S. PATTERSON, PH.D., Associate Editor
REGINALD M. ATWATER, M.D., Managing Editor

EDITORIAL BOARD

JOHN D. PORTERFIELD, M.D., Chairman
HOWARD W. ENNES, JR., M.P.H.
MARK D. HOLLIS, C.E.
RUTH W. HUBBARD, R.N.*
EDMUND K. KLINE, DR.P.H.
GEORGE ROSEN, M.D.
The Editor, Associate Editor, and Managing Editor

* Deceased

STAFF

LYDIA GARI, Editorial Assistant
ELIZABETH KELLOGG, Editorial Assistant
FRANCES TOOROCK, Editorial Associate
WILLIMINA RAYNE WALSH, Associate Secretary

CONTENTS

PAGE

Creative Health and the Principle of Habeas Mentem 139
FILLMORE H. SANFORD, PH.D.

The Nonhospitalized Tuberculosis Patient 149
EDWARD T. BLOMQUIST, M.D.

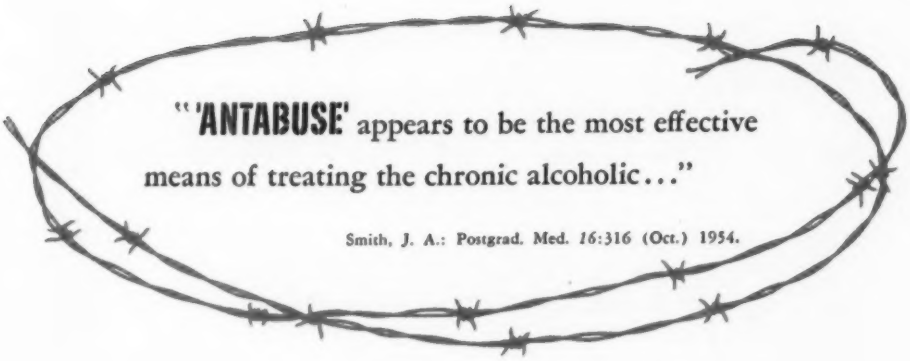
Ground Disposal of Radioactive Wastes 156
ROY J. MORTON, C.E., AND EDWARD G. STRUXNESS

The Health Officer's Job in the Control of Viral Diseases 164
JOHN E. GORDON, M.D.

Continued on page vi

The American Journal of Public Health is published by the American Public Health Association, Inc., at 374 Broadway, Albany 7, N. Y. Executive office 1790 Broadway, New York 19, N. Y. Subscription price $10.00 per year for United States, Cuba and Mexico, South and Central America; $10.50 for Canada; and $11.00 for other countries. Single copies $1.00 postpaid. Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879. Published monthly. Copyright 1956, by American Public Health Association, Inc. The American Journal of Public Health is indexed in the Industrial Arts Index and, in part, in the quarterly Cumulative Index Medicus, Biological Abstracts, Chemical Abtsracts, Engineering Index, and Public Affairs Information Service.

Address all correspondence to the Managing Editor, 1790 Broadway, New York 19, N. Y.



A "CHEMICAL FENCE" FOR THE ALCOHOLIC. "Antabuse" helps the alcoholic resist his compulsive craving for alcohol, and enables him "to respond more readily to measures aimed at the correction of underlying personality disorders." Bone, J. A.: J. Nat. M. A. 46:245 (July) 1954.

"Antabuse"® brand of DISULFIRAM (tetraethylthiuram disulfide) is supplied in 0.5 Gm. tablets, bottles of 50 and 1,000.

Complete information available on request

Ayerst Laboratories • New York, N. Y. • Montreal, Canada

5546

Contents—Continued PAGE

Comparisons of Various Methods of Estimating the Prevalence of Chronic Disease in a Community—The Hunterdon County Study 173
RAY E. TRUSSELL, M.D.; JACK ELINSON, PH.D.; AND MORTON L. LEVIN, M.D.

Present Status of School Health Ventilation 183
C. P. YAGLOU

The Treponema pallidum Complement-Fixation Test 190
HAROLD J. MAGNUSON, M.D., M.P.H., AND JOSEPH PORTNOY, PH.D.

Handicapped Children in Georgia: A Study of Prevalence, Disability, Needs and Resources 195
SAMUEL M. WISHIK, M.D., M.P.H.

The Problem of Mental Health Among the Aged 204
BERNARD KUTNER, PH.D., AND WILSON G. SMILLIE, M.D.

Service Statistics—An Essential Dimension in Program Design 209
EVELYN FLOOK

Be Sure the Juice Is Worth the Squeeze 215
CLEMENS W. GAINES

EDITORIALS:
Public Health and the Cardiovascular Diseases 217
Some International Trends in Nutrition 218

The Place of Health Services in the Structure of State Government . . . 220
Committee on Administrative Practice.
ROSCOE P. KANDLE, M.D., CHAIRMAN

Reports of APHA Standing Committees:
Committee on Administrative Practice 222
ROSCOE P. KANDLE, M.D., CHAIRMAN
Committee on Professional Education 226
LEROY E. BURNEY, M.D., CHAIRMAN
Committee on Research and Standards 229
MALCOLM H. MERRILL, M.D., CHAIRMAN

Credit Lines 233

Books and Reports 237

Books Received 244

A Selected Public Health Bibliography 245

Association News 248
Awards of Affiliated Societies. Mississippi Public Health Association.

Employment Service 250

News from the Field 255

Conferences and Dates XIII

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association, Inc., unless formally adopted by the vote of the Association.

Reprint prices in quantity furnished upon request.

NEW STUDY CONFIRMS

Curbing of Alcoholic Hangover

WITH

Bottled Carbonated Water

IN AN intensive study of 123 male patients with alcoholic hangover lasting from two to five days, one group of patients drank exclusively carbonated water, taking at will from two to four quarts a day without difficulty.[1] The carbonated water produced small to moderate but noticeably diminished intensity and duration of acidosis; an appreciable diminution of nausea and definite improvement of appetite. Patients voluntarily expressed their preference for carbonated water due to the relief of nausea.

Results of this study agree with previous studies that excessive gastric acid secretion due to gastric retention or alcohol is lessened appreciably by carbonated beverages[2] which reduces loss of alkali and minimizes ultimate systemic acidosis, a possible factor in hangover. Carbonated water augments gastric contractions and shortens gastric emptying time.[3] The increased speed of gastric emptying has been corroborated by fluoroscopy.[4]

All this data indicates why carbonated beverages are often preferred as vehicles for alcoholic drinks and are valuable where more rapid gastric emptying is desired.

1. Greenberg, L. A., Yale University, Laboratory of Applied Physiology. (Personal report not yet submitted for publication.)
2. Greenberg, L. A., August 2, 1952, New England Journal of Medicine 253:105, 1955.
3. Carnot, P., and Koskowski, Compt. rend. biol. 81:613, 1922.
4. Lolli, G., Greenberg, L. A., & Lester, D., New England Journal of Medicine 246:490, 1952.

American Bottlers of Carbonated Beverages

WASHINGTON 6, D. C.

The National Association of the Soft Drink Industry

The American Bottlers of Carbonated Beverages is a non-profit association of manufacturers of bottled soft drinks, with members in every State. Its purposes... to improve production and distribution methods through education and research, and to promote better understanding of the industry and its products.

Directory of Health Service

BLACK & VEATCH
Consulting Engineers
Water — Sewage — Electricity — Industry
Reports, Designs, Supervision of Construction, Investigations, Valuation and Rates.
4706 Broadway, Kansas City 2, Mo.

EDWARD SCOTT HOPKINS
Consulting Sanitary Engineer
Specializing in problems concerning water purification, sewage treatment, and abatement of stream pollution from industrial wastes
407 Morris Bldg. Baltimore 1, Md.

T P I
(Treponema Pallidum Immobilization Test)
Information on fees, and on collection and submission of specimens furnished upon request
THE DICKMAN LABORATORIES
1415 W. Erie Ave. Philadelphia 40, Pa.

EMERSON VENABLE, P. E.
Chemist and Chemical Engineer
Atmospheric Pollution.
Industrial Hygiene Chemical Warfare
6111 Fifth Ave., Pittsburgh 32, Pa.

PROFESSIONAL EXAMINATION SERVICE
A Personnel Administration Service in the Field of Public Health
Available to State and Local Health Departments and Merit Systems
Examinations Field Consultation
American Public Health Association, Inc.
1790 Broadway, New York 19, N. Y.

INDEX TO ADVERTISERS

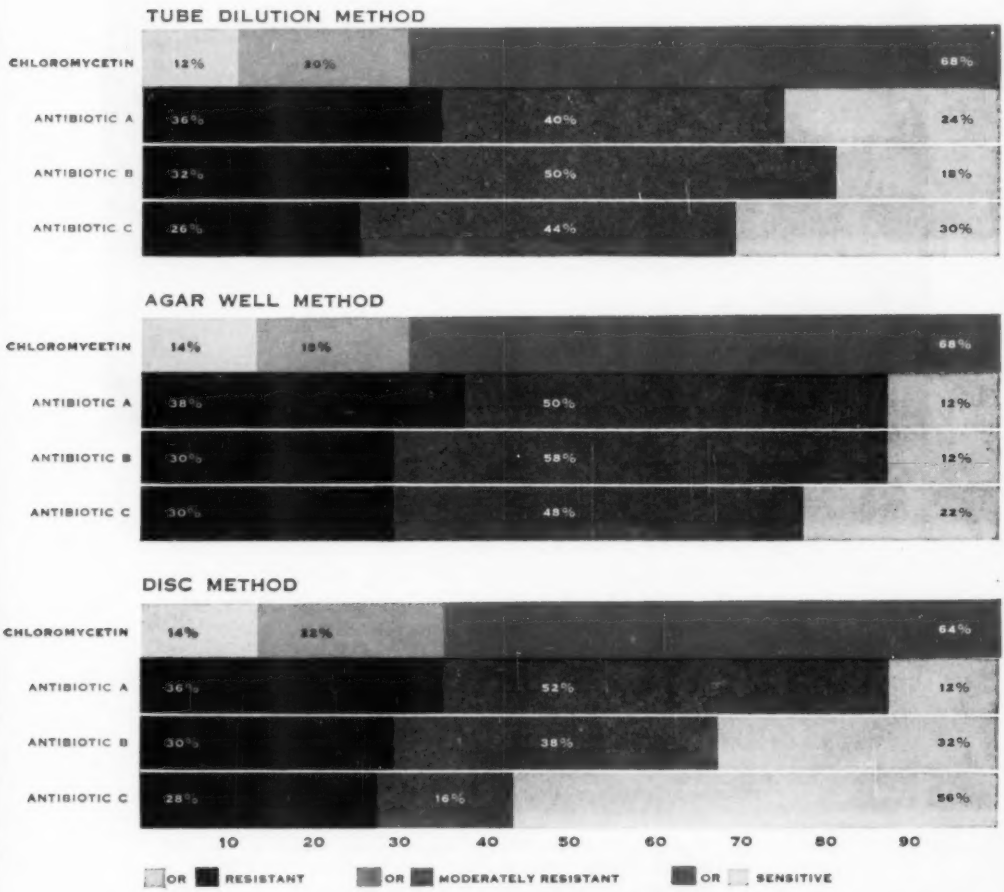
	Page
American Public Health Association: Book Service	XIX, XXIII
Membership Application Blank	XXV
Sustaining Members	XX
Allied Mills, Inc. (Wayne Laboratory Rations)	XXVIII
American Bottlers of Carbonated Beverages	VII
American Can Company	XVIII
American Meat Institute	XXIX
American Seal-Kap Corp.	XXVII
Ayerst Laboratories (Antabuse)	V
Baltimore Biological Laboratory, Inc. (Sensi-Discs)	XXVI
Case Laboratories (Multidisks)	XXV
Corning Glass Works	XXI
Crown Cork & Seal	II
Difco Laboratories	Back Cover
Directory of Health Service	VIII
Black & Veatch	
Dickman Laboratories	
Edward Scott Hopkins	
Emerson Venable, P.E.	
Professional Examination Service, APHA	
Good-Lite Mfg. Co. (Visual Testing Equipment)	XXVIII
Hoffmann-La Roche, Inc. (White Flour in the U.S.A.)	XIV
Lederle Laboratories (Mumps Vaccine)	XIX
E. Leitz, Inc. (Microprojectors)	XV
MacGregor Instrument Co.	III
National Dairy Council (Rx Weight Control)	XVII
Oval Wood Dish Corp. (Tongue Blades)	XXVI
Parke, Davis & Co. (Chloromycetin)	IX
Pfizer Laboratories, Division Chas. Pfizer & Co., Inc. (Toclase)	XII, XIII
Powers X-Ray Products, Inc.	XXIV
Rohm & Haas Company (Hyamine 1622)	XI
Steiner Sales Company (Washroom Sanitation)	XXIV
Sterwin Chemicals, Inc. (Roccal)	XVI
Wallace & Tiernan (Ointment Salundek)	XXVII
Wyeth, Inc. (Bicillin)	X

more effective against gram-negative bacilli...

Chloromycetin®

for today's problem pathogens

SENSITIVITY OF 50 GRAM-NEGATIVE BACILLI* TO CHLOROMYCETIN AND THREE OTHER MAJOR ANTIBIOTICS TESTED BY THREE METHODS

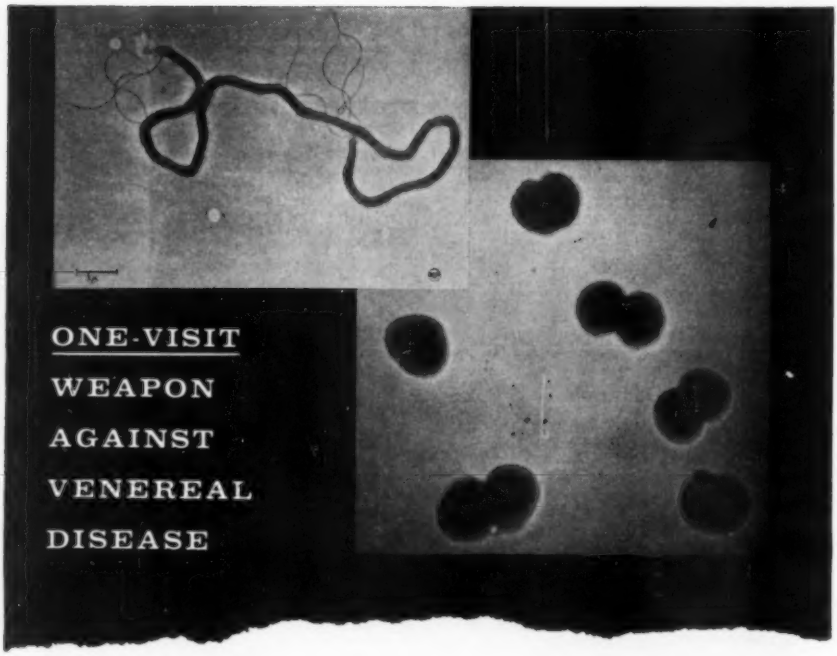

TUBE DILUTION METHOD
CHLOROMYCETIN 12% 20% 68%
ANTIBIOTIC A 36% 40% 24%
ANTIBIOTIC B 32% 50% 18%
ANTIBIOTIC C 26% 44% 30%
AGAR WELL METHOD
CHLOROMYCETIN 14% 18% 68%
ANTIBIOTIC A 38% 50% 12%
ANTIBIOTIC B 30% 58% 12%
ANTIBIOTIC C 30% 48% 22%
DISC METHOD
CHLOROMYCETIN 14% 22% 64%
ANTIBIOTIC A 36% 52% 12%
ANTIBIOTIC B 30% 38% 32%
ANTIBIOTIC C 28% 16% 56%
10 20 30 40 50 60 70 80 90
OR RESISTANT
OR MODERATELY RESISTANT
OR SENSITIVE

*Breakdown of gram-negative bacilli—Coli: 11; Proteus: 10; *Klebsiella pneumoniae:* 9; Aerobacter: 7; Pseudomonas: 7; Achromobacter: 2; Paracolon: 2; *Salmonella typhosa:* 1; *Bacterium anitratum:* 1. Adapted from Branch, A.; Starkey, D. H.; Rodgers, K. C., & Power, E. E.: Antibiotics Annual, 1954-1955, New York, Medical Encyclopedia, Inc., 1955, p. 1125.

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

MEDICAMENTA VERA

PARKE, DAVIS & COMPANY DETROIT, MICHIGAN



Injection BICILLIN is a potent weapon against venereal disease because it achieves prolonged penicillemia with a single injection.

To eradicate *primary and early secondary syphilis*, Smith[1] reports that one injection of 2,400,000 units supplies the persistent penicillin levels required for therapeutic efficacy.

And in *acute gonorrheal urethritis*, "... a single dose of 300,000 units intramuscularly is adequate to effect a cure in most cases."[2]

Supplied: Injection BICILLIN, 2,400,000 units, single-dose disposable syringe (4-cc. size); 300,000 units per cc., multiple-dose vial of 10 cc.

1. Smith, C.A., and others: Am. J. Syph., Gonor. & Ven. Dis. *38*:136 (March) 1954. 2. Council on Pharmacy and Chemistry. New and Nonofficial Remedies. J. B. Lippincott Co., Philadelphia, 1955, p. 166.

INJECTION BICILLIN® LONG-ACTING

Benzathine Penicillin G (Dibenzylethylenediamine Dipenicillin G)

PENICILLIN WITH A SURETY FACTOR

Wyeth®
Philadelphia 1, Pa.

DIISOBUTYL phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride monohydrate . . .

. . . simply the chemical name for

HYAMINE 1622

a quaternary ammonium germicide manufactured by Rohm & Haas Company. It is used by leading formulators to make sanitizing agents for the restaurant, dairy and other fields.

AN INVITATION—You will find it to your advantage, we believe, to become better acquainted with this company and its sanitary products. As a step in this direction, why not permit us to add your name to our mailing list? You will receive regularly our technical publications on the sanitizing applications of our products which are of interest to you.

Just send us your name and address, indicating the nature of your work and whether you have any special problems on which we might be of immediate assistance. If you are not already receiving our bi-monthly magazine, The Rohm & Hass Reporter, it will be sent to you as well.

HYAMINE is a trade-mark Reg. U. S. Pat. Off. and in principal foreign countries.

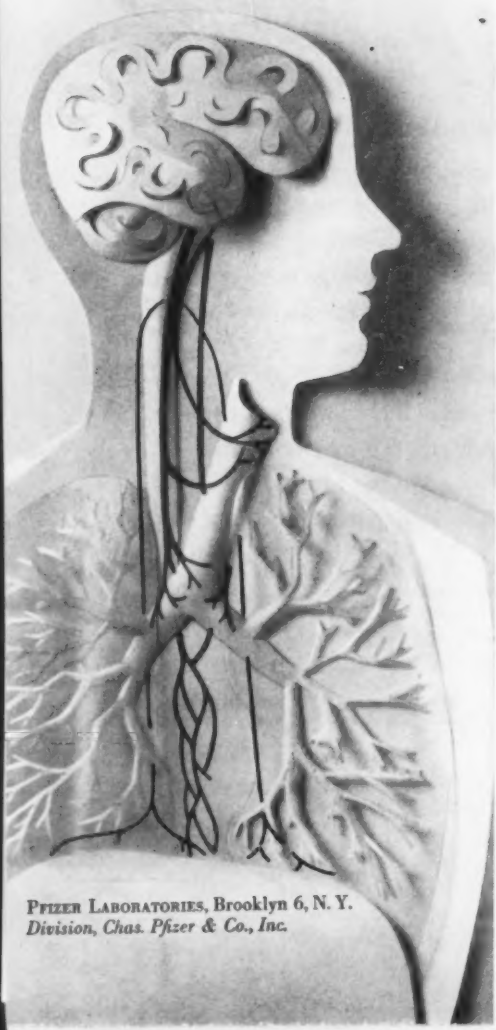
Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

Selective
cough control
through...



PFIZER LABORATORIES, Brooklyn 6, N. Y.
Division, Chas. Pfizer & Co., Inc.

CREDIT LINES

Ages and Stages of Childhood

A series of films designed to show child growth from two to 15 is being distributed by the Text-Film Department of McGraw-Hill, publishers. The series is produced by Crawley Films Ltd. for the National Film Board of Canada. Four have been completed, the first of which, "He Acts His Age," is a general survey film. Three others are "Terrible Twos and Trusting Threes," "Frustrating Fours and Fascinating Fives," and "From Sociable Six to Noisy Nine." The first has a running time of 13 minutes, the others about 20 minutes. Each is available in black and white or in color. Prices range from $70 to $110 for black and white, $130 to $190 in color.

McGraw Hill also distributes a series on marriage with a number of titles, and a series of film strips on simple nursing. The last named are particularly for home nursing study groups and home economics classes. Text-Film Department, McGraw Hill, 330 W. 42nd St., New York 36, N. Y.

Community Leadership Pamphlets

For those with leadership problems—and who in public health is without them—the Adult Education Association has published a "leadership series" of three pamphlets. "How to Lead Discussions," "Planning Better Programs," and "Taking Action in the Community," have been adapted from material originally published in "Adult Leadership" of the Fund for Adult Education.

An interesting fact about the pamphlets is that they were prepared at the request of members of the National Education Association, who apparently knew what they wanted.

Adult Education Association, 734 N. Wabash Ave., Chicago 11, Ill.; 60 cents each; reductions for quantity orders.

(Continued on page 233)

CONFERENCES AND DATES

American Public Health Association, 84th Annual Meeting, Atlantic City, N. J. Headquarters: Hotel Ambassador, November 12–16.

State and Regional Public Health Meetings:

Illinois Public Health Association. St. Nicholas Hotel, Springfield, Ill. April 5–6.

Middle State Public Health Association and Ohio Public Health Association. Joint Meeting. Neil House, Columbus, Ohio. April 30–May 2.

North Dakota Public Health Association. Bismarck, N. D. March 22–23.

Southern Branch, APHA. Tulsa, Okla. April 4–6.

Texas Public Health Association. Hotel Texas, Fort Worth. February 26–29.

Meetings of Other Organizations Coming in February, March, and April, 1956:

American Academy of Occupational Medicine. Cincinnati, Ohio. February 15–17.

American Mosquito Control Association. Hotel Beaumont, Beaumont, Tex. February 5–8.

Child Study Association. Annual Conference. New York, N. Y. April 2–4.

Community Chests and Council of America. Biennial Conference. Detroit, Mich., February 5–10.

Community Health Week. March 18–24.

International Union for Health Education of the Public. Third International Conference. Rome, Italy. April 27–May 5.

Inter-American Congress of Sanitary Engineering (Fifth). Lima, Peru. March 18–24.

National Health Forum (National Health Council). Sheraton-Astor Hotel, New York, N. Y. March 21–22.

National Society for the Prevention of Blindness. Palmer House, Chicago, Ill. March 26–28.

Pan American Medical Women's Alliance, Fifth Congress. Santiago and Vina del Mar, Chile. March 6–14.

Public Health Conference on Records and Statistics. Washington, D. C. March 12–16.

Society of American Bacteriologists. Shamrock-Hilton Hotel, Houston, Tex. April 29–May 4.

...selective inhibition of the cough reflex with

TOCLASE®

BRAND OF CARBETAPENTANE CITRATE

non-narcotic, non-opiate, highly palatable antitussive agent

TOCLASE EXPECTORANT COMPOUND Sugar-free, pleasant-tasting, cherry-flavored, amber-colored syrup. *Bottles of 1 pint.*

TOCLASE SYRUP Pleasant-tasting, cherry-flavored, red-colored syrup. *Bottles of 1 pint.*

TOCLASE TABLETS For convenience at work or recreation. *25 mg. tablets, bottles of 25.*

Pfizer

INSIDE SCIENCE

White Flour in the U.S.A.—

Enriched* with Vitamins and Iron for Better Nutrition

by Science Writer

This article is one of a series devoted to the enrichment of family white flour, white bread and rolls, corn meal and grits, macaroni products and white rice.

The enrichment of family white flour with thiamine, riboflavin, niacin and iron by American millers is a major success. It has made great contributions to better health in the United States by improving a staple food.

Since the start of the program in 1941 by millers, voluntarily, the evidence is conclusive that enrichment not only has reduced the number of cases of certain dietary diseases but also is promoting the mental and physical vigor and well-being of the U. S. population generally. Because of its demonstrated value, the principle and practice of enrichment have been applied to other foods made from grains: corn meal and grits, white rice, macaroni, spaghetti, noodles, pastina, farina—and, of course, to white bread and rolls.

Doctors and diet experts have long supported white flour enrichment. The Council on Foods and Nutrition of the American Medical Association and the Food and Nutrition Board of the National Research Council are on record as endorsing the practice.

The legislatures of a majority of the States plus Hawaii and Puerto Rico have enacted laws which make mandatory the enrichment of all family white flour, as well as white bread, sold commercially in those areas.

American homemakers, too, favor foods they know to be enriched—a fact demonstrated by surveys. They look for these words on package labels: "Enriched with vitamins and iron for better nutrition."

What Is Enrichment?

It's an axiom in the milling industry that consumers want beautifully fine, white flour. When wheat is milled and processed to get the white flour which the public demands, vitamin and mineral values are unavoidably lost.

Enrichment restores to white flour the following important vitamin and mineral factors: thiamine, riboflavin, niacin and iron. Calcium also may be added as an optional ingredient. The process is simple and inexpensive. A mixture of the vitamins and iron is fed into the flour stream during processing. This insures that the enriching ingredients are spread evenly throughout the flour.

The U. S. Food and Drug Administration has established standards which white flour must meet to be properly labeled enriched. The requirements, in milligrams per pound, are:

	Min.	*Max.*
Thiamine (vitamin B_1)	2.0	2.5
Riboflavin (vitamin B_2)	1.2	1.5
Niacin (another "B" vitamin)	16.0	20.0
Iron	13.0	16.5

(In Canada, too, the same standards have been set for enriched white flour through the amendment of the Food and Drugs Act.)

Vitamins Are Made

The science of chemistry is so advanced these days that many of Nature's complex substances can be "duplicated" in the laboratory. This has happened with many vitamins. First, the chemical composition is learned. Second, the pure substance is isolated. Third, a "duplicate" is made by synthesis. And fourth, the laboratory techniques are extended to large scale operation.

The manufactured "duplicate" is identical chemically and in biological activity with Nature's own product. A vitamin is still a vitamin regardless of its source. So efficient is large scale manufacturing that vitamins are sold at a lower cost than if they were extracted from natural sources.

The Hoffmann-La Roche people make top quality vitamins actually by the tons. To do this they use amazingly complex processes with scientific production controls and the latest equipment which fill buildings each a city block square and many stories high.

Reprints of this article, and all others in this series are available without charge. Please send your request to the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec.

The watermills are gone. Today's needs require today's methods. How sensible it is that millers across the nation restore health-giving vitamins and minerals through enrichment.

*Webster's Merriam Collegiate Dictionary includes this definition of "enrich": "to improve (a food) in nutritive value by addition in processing of vitamins and minerals".

for microprojection with finer detail . . . more brilliance

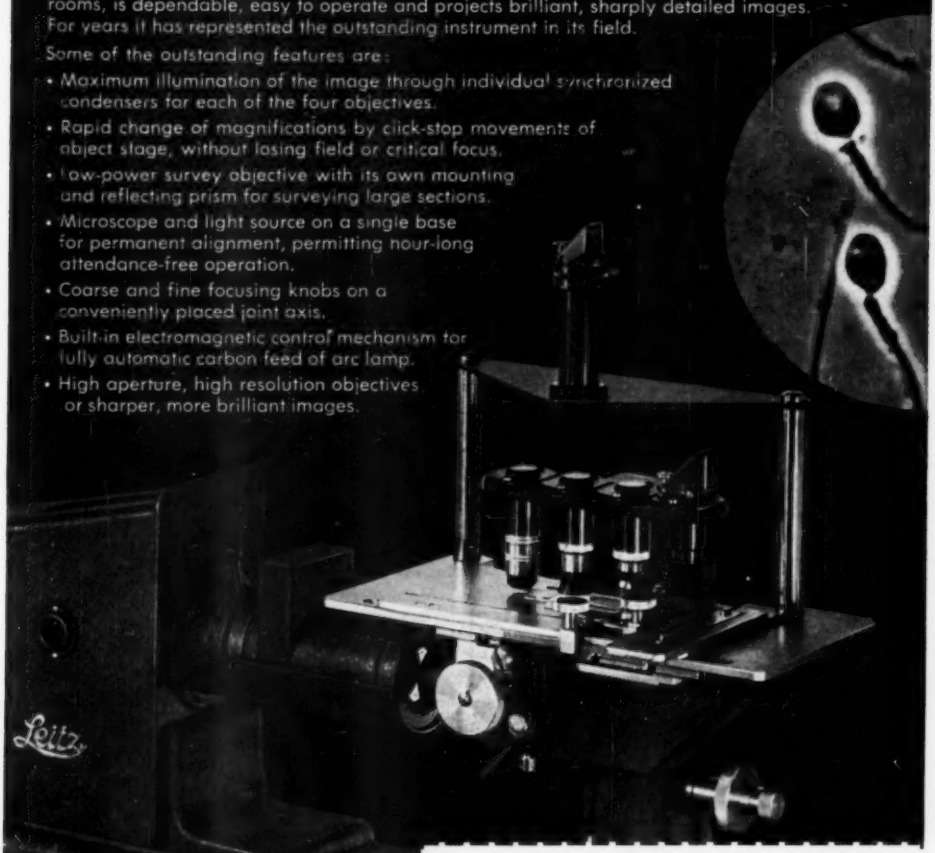
Leitz **MICROPROJECTOR**

model XI C

You will find that the versatile Leitz *MICROPROJECTOR*, suitable to either large or small rooms, is dependable, easy to operate and projects brilliant, sharply detailed images. For years it has represented the outstanding instrument in its field.

Some of the outstanding features are:

- Maximum illumination of the image through individual synchronized condensers for each of the four objectives.
- Rapid change of magnifications by click-stop movements of object stage, without losing field or critical focus.
- Low-power survey objective with its own mounting and reflecting prism for surveying large sections.
- Microscope and light source on a single base for permanent alignment, permitting hour-long attendance-free operation.
- Coarse and fine focusing knobs on a conveniently placed joint axis.
- Built-in electromagnetic control mechanism for fully automatic carbon feed of arc lamp.
- High aperture, high resolution objectives for sharper, more brilliant images.



E. LEITZ, INC., Dept. PH–2
468 Fourth Avenue, New York 16, N. Y.

Please send me your brochure on the Leitz *MICROPROJECTOR*.

Name_____

Street_____

City_____ Zone_____ State_____

E. LEITZ, INC., 468 FOURTH AVENUE, NEW YORK 16, N. Y.
Distributors of the world-famous products of Ernst Leitz, Wetzlar, Germany
LENSES • CAMERAS • MICROSCOPES • BINOCULARS

Roccal BRAND SANITIZING AGENT

Measures up in every way as the quaternary of choice

The sanitizing properties of quaternary ammonium compounds are so well known to public health officials that little could be said about them that you do not know. Almost everybody in public health work has added the "quats" to the armamentarium he uses in his war on disease.

The question then is, "Which 'quat'?" Are they all alike? Which one can I depend on to do the job expected of it *every* time?

In Roccal, the original quaternary ammonium germicide, you are offered a product that is always uniform in quality because it is made under the most rigid controls. Every batch must pass the comprehensive laboratory tests of one of the world's leading pharmaceutical manufacturers. You can depend on Roccal to do a better sanitizing job *every* time!

When you specify a "Quat" be sure it's *Genuine* Roccal

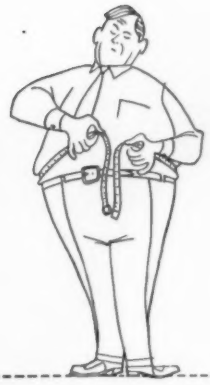
In recommended dilutions Roccal is:

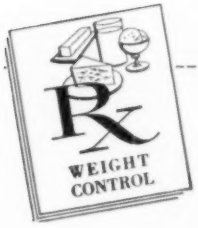
- ☑ POTENT
- ☑ NON-POISONOUS
- ☑ TASTELESS
- ☑ ODORLESS
- ☑ STAINLESS
- ☑ NON-IRRITATING
- ☑ NON-CORROSIVE
- ☑ STABLE

Insist on Genuine Roccal BRAND SANITIZING AGENT

Sterwin Chemicals Inc.
SUBSIDIARY OF STERLING DRUG INC.
1450 Broadway, New York 18, N. Y.

measuring up!





The doctor's help is often needed if a busy man is to keep his waistline from expanding along with his responsibilities.

Insurance statistics show mortality rate is high among overweight persons . . . increasing with increasing overweight. Yet weight can be lost and desired weight maintained on a palatable diet of ordinary foods . . . easily obtained at the family table or chosen from a restaurant menu.

Medically supervised studies on weight reduction show active men and women achieving satisfactory weight losses, without undue hunger or loss of pep . . . on diets containing approximately equal weights of protein, fat and carbohydrate. A combination of protein and fat slows digestion and absorption of nutrients, thus delaying the onset of hunger between meals.

The foods included in these diets provide all essential nutrients in amounts recommended for adults. Only calories are in deficit. Dairy foods are an important feature of these meals because of their high proportion of nutrients in relation to the calories they provide. Their taste appeal and variety make the diet easy to follow until the desired weight is lost.

Doctors! Send for the convenient leaflet and diet instruction sheets containing menus for three full meals a day for an entire week. Diets at two moderately low calorie levels are included. These diet instructions will be useful even where a person may require a different calorie level for weight loss. For such individuals, the physician can suggest desired modification, retaining the basic diet plan.

These materials are yours on request—without cost or obligation. Simply fill out the coupon below and mail it today.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

NATIONAL DAIRY COUNCIL—*A non-profit organization*
Since 1915 . . . promoting better health through nutrition research and education.
111 N. Canal Street, Chicago 6, Illinois.

C-2

Please send me, without cost or obligation, a pad of diet instruction sheets and leaflet on weight reduction.

NAME _____

PROFESSIONAL DESIGNATION _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

To bring Milk to the public *—at its best!*

Thanks to a wonderful network of cooperative effort by dairymen, distributors, container manufacturers and others, milk is delivered to the American public pure and fresh—all year 'round!

Each step in this important service to the public has its own special value. Here at American Can Company we are particularly mindful of the role played by health officers and sanitarians. We seek, as they do, to make sure that consumers receive milk at its best.

In this connection, we are pleased with the unusual public acceptance our container has earned. For evidence of this acceptance you may be interested in seeing the results of a recent "Kitchen Comparison" survey. This authentic report is yours for the asking. To get your copy, simply send your request to the address below.

Fibre Milk Container Department
AMERICAN CAN COMPANY CANCO
100 Park Avenue, New York 17, N.Y.

American Journal of

PUBLIC HEALTH

and the Nation's Health

Official Monthly Publication of the American Public Health Association, Inc.

Volume 46 | February, 1956 | Number 2

Creative Health and the Principle of Habeas Mentem

FILLMORE H. SANFORD, Ph.D.

Many will note and frequently recall this prophetic phrase, "there will be more education and less priestly mandate, more advice and less control, more consultation and less prescription, more facts and fewer arcane pronouncements."

My first reaction to the question, "where are we going in public health?," is a feeling of very considerable pride that I, if only through the desperation of your program committee, am included temporarily in the "we." I am aware, of course, and gratefully so, that public health people, because of the nature of their concerns and the magnitude of their aspirations, do not often use "we" with the exclusiveness I have just implied. The best thing I know about the profession of public health is that when it says "we" it includes all mankind. As a beneficiary of your vision and of your accomplishments I can say loudly, both as a comforting prediction and as an expression of faith, "Whither thou goest, I will go."

But neither faith nor comfort can prevent an American citizen from telling his betters exactly how to run their business. During the next few minutes I want to trace out what seems to me some significant long-term trends in our society; then, descending a bit from these clouds, I hope to talk about some general implications for human welfare; and finally, I will put together some hesitant declarative sentences about ways in which the public health profession might, if its pooled wisdom dictates, bring itself to confront what may turn out to be the coming century of the psychological man.

My diffidence, which I will try to handle sometimes by apology and sometimes by making statements with spectacular assurance, now leads me to tell

Dr. Sanford is executive secretary, American Psychological Association, Washington, D.C.

This paper was presented before the Association Symposium at the Eighty-Third Annual Meeting of the American Public Health Association in Kansas City, Mo., November 14, 1955.

you that I am equipped for the task I have chosen by virtue of the fact that I read the papers, I have regular contact with Washington taxi drivers, and I have recently paid a visit to the largest crystal ball in the world, now housed in the Smithsonian Institution. And I am opposed to disease. You will also see that my few years of involvement with the strange, young, and burgeoning profession of psychology will introduce some biases — sometimes charitably labeled perspectives—into my paragraphs.

Now—off to the clouds! I want to attempt the delineation of four major trends in our changing culture, four trends likely to affect the way life is lived in 1975 and likely to have significant implications for any who choose to concern themselves with the advancement of human welfare.

1. There will be increasing freedom from drudgery. Atomic power is coming. Automation is coming. The four-day work week is not far off. The guaranteed annual wage is at least partially here. Leisure replaces drudgery, and a worry about the second loaf of bread gives way to a worry about the second television set.

2. There will be an increasing freedom from the major killing diseases. It is already true that anyone who personally remembers typhoid or smallpox or yellow fever is as "dated" as anyone who remembers Theda Bara or Caruso. One is not being too starry-eyed to expect that we will, in the foreseeable future, be able barely to remember many of our chronic as well as our communicable diseases.

3. There will be an advancing level of general education. There has been a tremendous increase in the proportion of our population graduating from high school and from college. And there has been an increasing flood of educative material pouring into American homes through radio, television, magazines, and newspapers. We can expect the average man of 25 or 50 years from now to know much more about his world and about those aspects of it having a direct bearing on his own welfare.

4. There will be an increase in scientific knowledge of the world, perhaps particularly about the world of human behavior. The progress of science seems to be geometric—it snowballs! The more we know, the more we are equipped to learn. In the next 25 or 50 years we can expect natural science to open up new worlds to us—and that may not be a figure of speech. Perhaps equally geometric and at least equally startling will be our progress in the scientific knowledge of human behavior. Fifty years from now such primitive notions as the unconscious, conditioning, and the I.Q. will be old hat and we will be contending as best we can with newer ways of making better predictions about human behavior.

These general developments, which we can abbreviate as trends toward freedom from drudgery, freedom from disease, and freedom from ignorance, seem to have a degree of genuine validity. If so, it is extremely likely that the world of health and welfare is in for some very genuine evolution.

Relying again on enumeration, let me set down three statements about problems or challenges or—more neutrally—developments, that will confront those who concern themselves with the health and welfare of human beings. After making these three skeletonized statements I will come back to put what meat I can on each of them.

There will be an increased, and an increasingly effective, concern for positive—or perhaps better—creative health.

There will be increasing pressure for the human welfare professions to change the character of their roles.

There will be an increasing, and increasingly effective, concern with the psychological welfare, or the behav-

ioral health, of the human individual.

Each of these lower order trends is tied in its own way to the four trends enumerated earlier. Perhaps it is best, however, in view of the level of fantasy at which we are operating here, not to encumber ourselves with either attempted logic or the tracing out of sequences. Let me instead take each of these three points and belabor it a little.

Creative Health

The history of man's dealing with his own health can be talked about, if one is not too picayune about standards of scholarship or the need for precise definitions, in terms of four delineable phases. The first of these we might call the phase of passive acceptance. At one time, in his ignorance and in his engrossing preoccupation with the diurnal grimness of survival, the most man was able to do about his health was to reconcile himself as gracefully as possible to its imminent cessation. We need not concern ourselves here with the ways early man—and some not so early—went about achieving his comfort in the face of the grim inevitabilities. Since we are not entirely out of this phase and since none of us expects to live forever, we can examine our own behavior and find there some time-tested mechanisms for achieving a dignified if not a comfortable meeting with death. A second phase is the phase of cure. As knowledge gradually advances and as there are available resources for applying it, man learns to patch himself up after he has been victimized by some force of nature. I need not dwell on this phase either, since each of you is a better medical historian than I, and since each of us has had personal experience, upon occasion, with this phase of health history.

Phase three, the phase of prevention, comes as we learn more about the causes of debilitation and as there are more people around—professionals and otherwise—who can take an active hand in developing human well-being. In the last few decades, to speak in strictly chronological terms, our society seems to have made great progress into and through the phase of cure and into the phase of prevention. For this progress the profession of public health, and the American Public Health Association as its effective mechanism, can take as much pride as needed to keep its morale high. Now for phase four—the phase of creativity. Though we are not yet entirely passed through the phase of passive acceptance, and only really beginning to move from cure into prevention, there seem to be around a number of signs that the phase of creative health will soon be upon us. Knowledge is advancing and its advance seems to be more geometric than arithmetic. Society, at least in peacetime, is willing to devote more and more of its resources, human and otherwise, to the advancement of human welfare. As we gain freedom from ignorance, from drudgery, and from the great killers, we will gain the knowledge and the energy necessary to explore the limits of man's creativity and vitality, to find means whereby every man cannot only avoid disease and debilitation but can rise to his own best level of energy and vigor, of spontaneity, of creativity, of enjoyment.

As we gain greater knowledge, as that knowledge is more widely shared, as we have more time and energy available to us after mere survival is achieved, and as we are required to devote less energy to mastering the chronic and communicable diseases we may face the need for a new concept of health. My own fantasies say that health will become somewhat less a matter of urgency and more a matter of thoughtful organized planning. It will become less a matter of life and death and more a matter of really living. It will become somewhat less a matter of structure and somewhat more a matter of function. We will be

less concerned with maintaining sufficient health to stay out of bed, to keep up productivity, to pass as normal, and more concerned with maintaining such a level of vitality that each human individual can have the best of all possible chances of pursuing, at his own unique and individual peak of effectiveness, the great adventure of living.

Between these lines you can see creeping in my own feeling that we will move also toward serious and increasingly effective attention to the psychological or behavioral vitality of the human being. I wish to return to this topic a little later. You can also see in and between my sentences a tendency to think in terms of the welfare of the individual rather than in terms of health as a community or public matter. Let me state my underlying assumption, which you may or may not share, that when many individuals in a community are confronting the same problem, that problem is a community problem. And I would argue that if chronic disease is a public health problem, so is chronic vitality.

Changing Role of Professions

My general thesis here, firmly unsupported by fact, is that along with the trend toward creative health we are due to see what we might call a democratization or secularization of the health and welfare professions. As people less frequently encounter life-and-death urgency in the area of health and when people possess more general knowledge about the problems they do encounter, there will be a reduced inclination to let professional people plant themselves on priestly pedestals or to play the role of magical fixers.

Already we can see many signs among the more educated segments of society of a hostility to the expert who plays his role directively. To my mind the future will bring increased pressure on teachers, lawyers, physicians, dentists, psychologists, engineers—and on Indian chiefs, too—to work out a somewhat revised professional role. The ignorant and dependent man with an urgent problem gives himself gladly, body and soul, into the hands of an expert who can solve his problem. And the more God-like the expert, the greater the comfort in the dependency. On the other hand, an informed and independent man with a nonemergency problem will not take gracefully to the magical fixer, whatever the label in the fixer's professional hat. Such a citizen—and his tribe will increase—wants to solve his own problems in his own way. He wants a highly competent expert to give him information rather than preformed answers. He wants facts and cues about alternative ways he can interpret them. He will be resistant to prefabricated solutions handed him on a ritualistic platter. He wants to make his own decisions about his own welfare. And once he makes his own decision he will be much more inclined to act on it than on decisions handed down from above.

In the years ahead all the health and welfare professions will have to move along a road already being explored by public health. Down this road there will be more education and less priestly mandate, more advice and less control, more consultation and less prescription, more facts and fewer arcane pronouncements.

In this general connection let me describe what seems to be the evolving and necessary professional role of the psychologist. Psychology, by its nature, is a relatively strange profession, but a look at the psychologist's relation to those he serves may have some value as an illustration of something. And it may be a welcome variation, about now, for the speaker to walk a bit in his own yard rather than roam the random countryside.

It seems to me vitally important that the psychologist behave neither like the physicist nor like the physician. If this advancing young science and this bustling young profession is not to miss its own boat and fail to make its best contribution to the human enterprise, it must find its own way of advancing its own science and of rendering its own unique professional services.

The psychologist—when he adopts a service role—deals almost exclusively with problems falling over toward the creative end of the four-phase continuum we have talked about. At least most of the time the problems are non-emergency, though they may appear very urgent to the person who suffers them. He deals with problems of behavior, and it seems to be in the nature of things that behavioral problems must be solved by those who behave—human beings. Some day it may be possible to solve problems of learning or perception or emotional chaos or leadership or morale through the administration of wonder drugs, but it seems highly improbable. The behavioral problems of an individual, the management problems of an administrator, the military problems of a general, the child-rearing problems of a parent, the educational problems of a teacher—all must be actively dealt with by the individual, the administrator, the general, the parent, and the teacher. The psychologist can be useful to each of them. He can, through calling on his technical knowledge or through conducting tailor-made research, give them facts relevant to the problem. And what is often more important, he can give them alternative ways of viewing the problem, of casting it into manageable terms. He can serve as a technical resource, feeding carefully selected and skillfully presented in-put into the integrating and decision making mechanisms of another human being. And, too, he can be a mighty instrument whereby the client learns the client's way through the client's problem.

He cannot apply magical formulas, administer drugs, assume control, solve problems, or make decisions for another human being. He cannot assume complete responsibility for another human being unless that human being is patently unable to assume responsibility for himself. He must most often be responsible to, not for, a person. The person he serves is not a patient, sitting quietly while something is done to him, but a human being who is an independent entity—or capable of becoming so—a human being who has the potential of being his own best expert on his own behavioral problems.

The psychologist's role, then, is close to that of the teacher. He is, in a way, a translator of behavioral science, busy finding ways to take knowledge out of science and put it into the nervous systems of all who can profit by that knowledge. In the realm of behavioral health —or behavioral vitality—he is something of an exponent of the do-it-yourself movement. Of course, I am oversimplifying things here and perhaps saying them awkwardly, too. Anyone who has been involved on either end of a course of psychotherapy will recognize as very shallow the description I have given of that enormously intricate process. But shallowness is by no means total inaccuracy.

Psychotherapy, like consultation, is teaching and learning. The client must learn his way out of his problem and into independence. He must control himself, make his own decisions, be his own boss, run his own life. He must not learn long-term dependency on the counselor. The counselor, through the subtle application of knowledge and skill, helps the client free himself, forever, from counselors.

Not very well hidden in this description of the psychologist's professional relation with other human beings is an implicit thing that might well be called

the principle of habeas mentem—the right of a man to his own mind.* In our system of justice we have, by building the principle of habeas corpus into precept and precedent, protected the right of a man to his own body. In the coming years, in order to keep our experts from imposing their own ideas and values on the not-so-expert, we may need to weave into all codes of professional conduct the principle of habeas mentem. This principle becomes more and more important, it seems to me, as we devote more and more professional skill to the solution of nonemergency human problems. And it takes on great significance as the potency of ideas approaches that of drugs.

Before letting go of the tail of my fantasy about the role of the psychologist, let me make two more brief points that seem to have relevance for the partnership of psychology, and perhaps of other professions, with a supporting society. First, I would say that the idealism creeping into my description, an idealism emphasizing brotherly giving rather than fatherly fixing, is a realizable ideal for a profession only so long as that profession is firmly rooted in an ongoing science. If the creators of knowledge are continually creating, he who translates knowledge into utility has a continuing and changing job. He can freely give away knowledge because tomorrow he will have more and better knowledge. If there is no advancement of knowledge, the professional person, for his own survival, will feel the pressure to keep secrets, to hoard technics, to protect his position of power, and to cultivate dependency.

A second point is this. It seems a practical necessity for psychology to take definite steps to insure that technical knowledge about human beings is made widely available to human beings. Knowledge is power. Those who have knowledge are perceived as powerful. Powerful people are always potentially threatening people. All knowledgeable people in a society, particularly in an informed and democratic society, must take steps to convince society that the power of knowledge will be used for the public good. The best long-term way to insure that power will be used for the public good is to invest the power in the public. The power of knowledge can be invested in the public through the free and effective dissemination of knowledge.

The above sentences, while they relate initially to psychology, deal with knowledge in general. Perhaps they have some meaning for professions in general. They seem to me to have particularly salient meaning for psychologists because knowledge of human behavior has—or at least is publicly perceived as having—very tremendous power. If the psychologist or any other behavioral scientist is seen as hoarding his knowledge he will become a serious threat and will be the victim of hostility—probably justified. Already, even with his small knowledge of human behavior and even with his inherent readiness to tell anybody more about this knowledge than anybody wants to know, the psychologist is the object of considerable suspicion. Both as a scientist and as a professional person, he must take steps to insure that knowledge of people is knowledge for people. This to my mind is a very practical consideration. But in it, mundane practicality coincides with the values of democracy, the traditions of liberal education and our deep belief in the infinite worth of the independent human individual. I will not talk more about the profession of psychology or about behavioral science in society. If there is a point here for public health

* The term habeas mentem was first used, as far as I know, by George Kelly in an informal presentation at the 1955 Annual Meeting of the American Psychological Association.

you already have seen it more clearly than I can articulate it.

But one more general point on the role of professions. In the long run we can count on it that our dynamic culture will change and that there will be changing demands on all professions. The sort of changes I have talked about may be the veriest of fantasy, but some change will occur. And there is some point in asking about the general ability of the profession of public health to change with the times. While no one possesses either the knowledge or the concepts to diagnose the flexibility and viability of a profession, I hope that you have the wisdom to continue in the coming years to grow and change in such ways as will let you make your greatest contribution to mankind. Some institutions appear to have a built-in readiness to evolve. Democracy itself is such an institution. Other institutions ossify. They come into being as mechanisms to serve a social need. They do serve for a while. But after a while they seem to become more interested in their own survival than in serving their purposes. They reach a stage in which theories become dogma, pioneers become old fogies, yesterday's solutions are rigorously imposed on today's problems, and society is berated because it has not the sense to be served in the way it ought to be. Such an institution, though it may show remarkable tenacity, will eventually disappear, whatever pious noises are made about its traditions and its sanctity. How does an institution avoid encrustation and eventual death? I wish I knew, but I do not. But I somehow have a faith that the profession of public health has sufficient vigor and viability now to build into itself, in ways its own wisdom will dictate, mechanisms for perpetual evolution. As one with an investment in the future of public health I need such a faith and am comforted by the fact that I have it.

Increasing Concern with Behavioral Health

Most generally, when we speak of health, we speak in terms of the body. And we think of a healthy body as one able to stay out of bed and perform at some moderate level of effectiveness its daily chores. I have, with temerity, predicted that in an era of creative health we will not be satisfied to think of health in terms of the body's ability to operate at a moderate level of effectiveness. We will start thinking about ways in which the body can function at its own built-in best. And along with this change in our level of aspiration for the body will come, it seems to me, an increasing desire to have every human being characterized by behavior of creative vitality. We will worry if the individual's pattern of behavior shows disorganization, debilitation, disruption. We will worry about all those who fail to live up to their own capacity, who have healthy bodies but do not use them to their own satisfaction, who are admirably equipped for physiological survival but who do not achieve psychological vitality.

Already there is afoot a very significant and visible mental health movement. We are successfully directing public attention to the "nation's number one health problem." We are trying to recruit and train a vastly increased number of professional people to help us deal with mental illness. The national and state governments are pouring millions of dollars annually into mental hospitals and into programs of research and training. Society has recognized mental health as a problem and has begun to marshal resources to do something about it.

The mental health movement is presently characterized by a focus on the 700,000 people in our mental hospitals. In terms of the four phases enumerated earlier, we have moved out of passive

acceptance and into the phase of cure. We will be in this phase for some time, probably, because we have not yet learned very effective or economical ways to cure mental illnesses. Better cures will be found as we continue our stepped-up programs of medical and behavioral research.

There are also obvious signs that we are moving into the phase of prevention of mental illness. Both professionals and laymen talk more and more often about the 7,000,000 living Americans who may be future candidates for admission to our mental hospitals. And occasionally we hear a kind word said for the 70,000,000 or more Americans who may not be living up to their own best psychological snuff, who are tied in emotional knots, who cannot handle well their vocational or marital or child-raising problems, who somehow get along in life but in a limping, low octane way which they do not like at all. The creative phase seems not too far away.

As a matter of fact, if we look outside the realm of official and professional dealings with health, we may become convinced that the creative phase is upon us. Parents and teachers and ministers by the tens of millions are already actively involved in attempts to promote creative behavioral health—or creative behavioral vitality. A pervasive trait of our culture has come to be a belief that the human personality does indeed grow, that it has the capacity to achieve both happiness and maturity. We all raise our children and teach our students and even interact with our neighbors in ways we feel will help them become good, healthy personalities. Our efforts are characterized by good will and hostility, wisdom and ignorance, common sense and bigotry. But the efforts go on. Our belief in the inherent worth of the human individual, our refusal to accept a deterministic philosophy of life, and our high standards of living make it possible if not inevitable that we turn our energies to the achievement of behavioral vitality for every individual.

In a sense, then, the layman is far ahead of both the professional and the scientist in the area of behavioral health. There seems to me good reason to believe that, barring major economic or social upheaval, the public will go right ahead with its varied and highly motivated attempts to produce personalities characterized by maturity and vitality. Such a situation seems to me to present exciting and potentially explosive possibilities.

There very probably will be a continuing and expanding support for scientific research on the behavioral sciences. There will be an increase, perhaps geometric, in the scientific knowledge of human behavior. There will be an increasing demand for professional people to serve as middle-men between the scientist, who is the creator of knowledge, and the ordinary citizen who is the consumer and applier of knowledge. Actually, these sentences should not be phrased in a future tense for the trends are upon us. In psychology, for example, the level of research effort in all fields has increased mightily in the last decade. The body of hard scientific knowledge about human behavior, though still small, has grown. The membership of the American Psychological Association has increased from less than 3,000 in 1940 to more than 14,000 in 1955 and is still growing. The average American citizen, through formal education and mass media of communication, has easy—some think too easy—access to the facts and theories of psychology. There is a reality already here—a grim reality to some who basically disapprove of letting man learn too much about man, but an exciting reality to others who see a hope that behavioral science and life will overtake nuclear science and death.

Does all this have anything to do with health? Probably not, if we find it best to keep the concept of health encapsulated in its present semantical bindings. Probably not, if the concept of health needs to carry on its back the present related concepts of "patient," of the "doctor-patient relationships," and "total responsibility." These health concepts, so vitally necessary in the realm of urgency, may have a straight-jacketing effect on our attempts to solve the problems of creative health, particularly the problems of creative behavioral health. Coming concerns and coming opportunities to advance welfare should not and cannot be avoided on the grounds that they do not fit into existing conceptual pigeon holes or into existing institutional niches.

It seems desirable, and probably inevitable, that we either will need to revise our concept of health or find entirely new concepts to deal with the strange and challenging things that are coming.

Does all this have anything to do with public health? I do not know, but I hope so. I have the impression that the profession of public health, even though it has people in it, is less likely than most professions to achieve ossification, more likely than most to maintain its tradition of avoiding any paralytic effects of tradition. And I have the impression that the values and aspirations of public health equip it more than most professions to assume a leadership in the movement toward creative health and behavioral vitality.

Before concluding this perilous journey through the clouds, I would like to make one additional point. I would feel disloyal to my 14,000 employers in the Psychological Association if I did not engage in just a little bit of guild building by suggesting to you that psychologists of today can be of considerable use to you today as you go about your business. Most of you spend a tremendous part of your professional day dealing with human beings. You deal with them in the light of your own theories of motivation, of learning, of group processes. You formulate hypotheses about the best ways to achieve a certain desired effect and, in essence, you conduct experiments to see how your hypotheses hold up. On the basis of your views about human behavior and what makes it tick, you decide on courses of action. You carry them out and you gather evidence about how they work.

In this respect you are doing pretty much what the psychologist does. But the psychologist may have some knowledges and skills to help you do it better. The psychologist will not have the skills or experience or the wisdom to make the decisions you make or to carry out the programs you design. But he can feed into you some facts and some alternative points of view—some enlightened confusion, I like to call it—which may be of assistance to you. And you may call upon his research skills to help you design your programs and to evaluate their effectiveness.

I have a strong suspicion that there now lies on library shelves a good deal of material in psychology—and in other behavioral sciences—that could, if somehow made properly available, be of genuine usefulness to you. Somehow it just lies there, immobilized in generalizations and hidden by a screen of technical language. This material needs to be put into such a form that you could tell whether or not it has relevance for you.

Perhaps the research people themselves could do more to bring their knowledge out from under the bushel. But this is probably an unrealistic hope. Research is a very full-time job, requiring highly unique skills. The job of translating is also a full-time job, requiring other unique skills. Perhaps the best way to examine the utility of

behavioral science in the ongoing programs of public health is the way public health itself is going about it. You have taken into your field a number of psychologists, you are teaching them your problems and you are seeing if they can turn their skills to the achievement of your own ends. Personally, I think these people will be useful to you. I think they already are being useful. The personnel and testing project in the APHA central office (the Professional Examination Service), for example, seems to me to have significant utility. So do the varied studies now in progress in the Behavioral Studies Section and in other places in the Public Health Service. Some of you know of this applied research. Many of you will hear of it. In this general connection let me say that the newly formed Joint Committee on Behavioral Science in Public Health is both an encouraging indicator and a mechanism whereby the behavioral scientists and the profession of public health may profit through a joint look at common problems and shared goals.

In conclusion—at long last—let me express to you my gratitude that you exist, and my very warm hope that wherever you go in public health, you will find both the direction and distance to your liking. My impressions of you lead me to the belief that humanity will be well served if your values are advanced and your aspirations realized.

Training Courses for Diabetes Workers

A series of four courses in various aspects of diabetes is being offered in 1956 for the fourth consecutive year in its Boston Diabetes Research and Training Unit by the Public Health Service. Patient education, nursing, clinical, community, and nutritional aspects of the disease will be discussed.

Each course of five full days is limited to a small group of from 12 to 20. There is no tuition and information on living arrangements is provided when application is received.

The courses with their dates, the group designed for, and the limitations as to number follow:

Patient Education in Diabetes, February 27–March 2—"for those concerned with individual and group instruction of persons with diabetes." Twelve persons

Nursing Aspects of a Diabetes Program, March 19–23—"for nurses who work in official and non-official agencies . . . hospitals . . . clinics, schools, and industry." Fifteen persons

The Clinical and Community Approach to Diabetes, April 23–27; October 1–5—"for professional workers . . . interested in diabetes programs." Twenty persons

Nutritional Aspects of a Diabetes Program, May 21–25—"for dietitians and nutritionists in public and private health agencies, clinics, hospitals and other institutions." Fifteen persons.

Address applications and inquiries to the Public Health Service, Diabetes Field Research and Training, 639 Huntington Ave., Boston 15, Mass.

The Nonhospitalized Tuberculosis Patient

EDWARD T. BLOMQUIST, M.D.

This will prove a disquieting paper to those who have become complacent about tuberculosis; those who assume that new drugs and modern practice have "solved the tuberculosis problem."

Changing emphases and concepts in the tuberculosis problem in the United States have given rise to a variety of assumptions not supported by valid evidence. The paucity of precise evidence concerning the characteristics and status of tuberculosis patients who are not hospitalized has permitted unsubstantiated conjecture so conflicting in nature as to limit the effectiveness of program planning. The Public Health Service has therefore undertaken to provide statistical data that will reliably describe the current status of known nonhospitalized tuberculosis patients in sample areas of the continental United States, so that health departments and other tuberculosis control agencies may have a foundation of specific information on which to construct plans for the effective use of funds, facilities, and operations.

This is the first of a series of papers in which the Public Health Service and cooperating groups will present analyses of the status of nonhospitalized tuberculosis patients. Our intention in this presentation is to bring together certain of the more outstanding findings of the study. The purpose of this undertaking is to study the characteristics of nonhospitalized tuberculosis patients who are in need of intensive public health supervision and to provide information on the types of care and services given them.

Study Design

By means of sampling technics, 37 areas of the United States were selected. Together, these areas constitute an unbiased sample census of the number and status of known nonhospitalized cases for the United States as a whole. The nation was divided into three population groups and further subdivided into areas of suitable administrative size ranging from 50,000 to 600,000 population. For the largest cities, a part of a city constituted an area. In sparsely settled regions, four or more counties combined to make an area.

These areas were categorized into three strata: (1) large cities with populations 200,000 and over, from which eight areas were selected; (2) metropolitan areas other than larger cities, from which nine areas were selected; and (3) nonmetropolitan areas, predominantly rural, but including smaller cities which are not parts of metropolitan areas. Twenty areas were selected from this stratum.

The 37 areas in the study had a total population of almost seven million and

Dr. Blomquist is medical director and chief, Tuberculosis Program, Division of Special Health Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.

This paper was presented before a Joint Session of the American School Health Association and the Epidemiology, Laboratory, and Statistics Sections of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 18, 1955.

constitute portions of 24 states. It should be emphasized, however, that no area was intended to be representative of any state; rather, the 37 areas combined are representative of the entire nation. The 37 study areas are comprised of 123 independent health jurisdictions—nine cities, 92 counties, and 22 independent townships.

All areas used study dates within a period of 12 months from March 10, 1954, to March 1, 1955, with the exception of one area which participated later and used the study date, June 21, 1955.

According to the latest information on the status of all tuberculosis patients in need of intensive public health supervision in 37 areas, slightly more than half (55 per cent) were hospitalized cases and 45 per cent nonhospitalized cases.

Study Procedures

The original selection of cases was made from the state or local tuberculosis case register or the master index of reported cases. Cases for whom the health department had had no information during the last five years were not included. Cases with disease activity questionable, undetermined, or not stated were included and particular effort was made to obtain their clinical status. Each area was helped to establish procedures for carrying out the study as expeditiously as possible. The study entailed obtaining the most recent information available regarding clinical status, medical supervision, and public health nursing and social services provided during the six-month period preceding the study date. The usual procedure was to have case register personnel enter pertinent information from the case register on the individual patient schedule, and for the public health nurse to record the additional information requested. This information was obtained by reviewing clinic, public health nursing and hospital records, by conferences with private physicians and other personnel giving care in hospital outpatient departments, Veterans Administration, and social service agencies. Home visits were made when necessary to obtain current information as to the patient's home situation and needs.

In each area cases to be included in the study were those known to be active at home as of the study date. Total cases eventually included not only cases known to be active, but all current positive-sputum cases regardless of clinical status or treatment recommended, and all cases recommended for drug therapy. Cases known to be taking drugs or to have drugs recommended were included regardless of status because such cases require substantial resources for their care and supervision. However, in so doing, those classified as other than active were tabulated separately.

A large number of cases was removed from the study for various reasons. Many that had been classified as active, questionably active, and activity undetermined were found on follow-up not to be active tuberculosis cases. Somewhat more than 2,000 cases in all were removed as not fitting into the groups to be studied. About half were removed because they were not active cases and about one-sixth because they were found to have moved out of the area. Others had to be classified as lost, in hospital, etc. Out of more than 9,000 cases reviewed, less than 100 remained classified as "activity undetermined" at the end of the study and were for this reason excluded.

Characteristics of Study Cases

For purposes of analyzing the latest status of disease activity, the study cases were divided into three activity groups: (1) active and probably active, seen in past year; (2) presumably active, current activity status indeterminate;

Table 1—Activity Classification of Nonhospitalized Tuberculosis Cases

	Number	Per cent
Active and probably active, seen in past year	1,896	60.0
Presumably active, current activity status indeterminate	376	11.9
Total active and presumably active	2,272	71.9
Arrested or inactive with drug therapy prescribed	887	28.1
Total	3,159	100.0

(3) arrested or inactive with drugs prescribed.

In the following tables the active and presumably active cases are grouped together, because they comprise the cases that need the most intensive public health supervision.

Table 1 provides a census of tuberculosis cases at home at the time of the latest examination. Sixty per cent of the cases were active and probably active. Almost 12 per cent were presumably active. Twenty-eight per cent were arrested or inactive on drug therapy.

I should like to repeat at this point that according to the latest information at the time of the study, 55 per cent of the significant case load was hospitalized; 45 per cent was not hospitalized. Plainly, this situation has many implications for health departments and other agencies. Certainly, the community has as great a responsibility for those cases outside hospitals as for those that are hospitalized. Because of the attendant difficulties involved in supervising patients who are not in institutions especially designed for their care, medical, nursing, and social services will be particularly challenged. Health departments will be additionally concerned about the chances of spread of the disease because of the presence of active cases in their communities.

Table 2—Length of Time Known to Health Department

	Number	Per cent
Less than a year	815	25.8
1–4 years	1,528	48.4
5–9 years	511	16.2
10 years and over	276	8.7
Unknown or unreported	29	0.9
Total	3,159	100.0

Length of Time Known to Health Departments

This presentation contains information concerning nonhospitalized tuberculosis patients from the time they were first known to health departments to the time of this study (Table 2). Observe that one-fourth of the cases had been known to health departments less than one year, that three-fourths had been known for less than five years, and that 90 per cent had been known less than 10 years. This clearly indicates that the overwhelming number of cases at home are in need of that kind of public health supervision required soon after diagnosis.

The most significant fact to emphasize in Table 3 is the fact that about half of these nonhospitalized cases that

Table 3—Age Distribution of Nonhospitalized Tuberculosis Cases

Age Group	Number	Per cent
0–14 years	134	4.3
15–24 years	257	8.1
25–44 years	1,218	38.6
45–64 years	1,089	34.5
65 years and over	416	13.1
Not stated	45	1.4
Total	3,159	100.0

Table 4—Age and Sex of Nonhospitalized Tuberculosis Cases *

Under 35	
Male	415
Female	555
35 and over	
Male	1,456
Female	688

* Excludes 45 with age not specified.

need intensive public health supervision are 45 and older. It should also be pointed out that there is a striking similarity in the age distribution of these nonhospitalized cases and that of newly reported cases. That our tuberculosis control problem is proportionately greater in the older age groups can scarcely be questioned.

The study cases showed that males of all ages to females of all ages were in a ratio of 60–40. There is no great disparity in number of males and females in age groups under age 35; whereas there are more than twice as many males as females in ages over 35 (Table 4).

Table 5 shows the latest information available to the health departments about the extent of disease. One of the most significant facts to be stressed at this point is that so many of the cases are in advanced stages of disease.

Bacteriological status at last report within a six-month period is presented in Table 6. Observe that in nearly half the cases the sputum is either unknown or undetermined in the past six months.

Table 5—Extent of Disease

	Number	Per cent
Minimal	357	12.8
Moderately advanced	1,156	41.4
Far advanced	1,282	45.8
Total	2,795	100.0

Table 6—Bacteriological Status of Active and Presumably Active Tuberculosis Cases

Status	Per cent
Positive	24.0
Negative	27.8
Unknown or undetermined within preceding six months	48.2

This indicates that an inadequate job is being done generally in determining sputum status. Even if the failure lies largely in faulty communication, the fact remains that we do not know one of the most urgent clinical facts about these cases. Indeed, it is incredible that we are trying to supervise half our known cases at home with no information concerning sputum status.

We may say that more than two-thirds of the known active and presumably active cases are either positive or of unknown bacteriological status. In many instances the negatives consisted of a single bacteriological examination or of mere microscopic examination. Thus our data point out clearly that these cases at home include: (a) a large proportion that are positive, and (b) an even larger proportion that do not have a sufficient bacteriological determination to permit the public health agency to give realistic advice regarding prevention of the spread of disease.

By way of introduction to the material presented in Table 7, it should be pointed out that availability of facilities are directly related to density of population. That is, health department resources and facilities will be found in greater quantity and in a higher degree of accessibility in metropolitan areas. All the eight large cities in this study provide clinic, public health nursing, and social services; while almost half the study population in rural areas have no clinic services available, 10 per cent have no public health nursing service,

Table 7—Medical Supervision of Nonhospitalized Tuberculosis Cases

Type of Supervision	Number	Per cent
Health department chest clinic	887	33.5
Private physician	918	34.7
Sanatoria outpatient department	531	20.1
General hospital outpatient department	102	3.9
V.A. chest clinic	130	4.9
X-ray clinic	41	1.5
Organized home care program	38	1.4
Total under supervision	2,647	100.0
Not under supervision	512	
Total	3,159	

Table 8—Drug Therapy and Rest Recommended for Active and Presumably Active Tuberculosis Cases

	Number	Per cent
Both drug therapy and rest recommended	783	34.5
Drugs only recommended	207	9.1
Rest only recommended	360	15.8
Neither drugs nor rest known to be recommended	922	40.6
Total active and presumably active tuberculosis cases	2,272	100.0

and 80 per cent have no social services other than financial assistance, provided by departments of public welfare. Frequently, the amount of nursing service available was limited to one nurse serving a large rural county of 30,000 population, occasionally on only a part-time basis. In many rural counties there are few private physicians; thus, patients may be required to travel more than 200 miles to the state tuberculosis hospital outpatient department for medical examination. Some rural areas have x-ray facilities, but no physician is present to diagnose patients and make treatment recommendations.

Note that 512, or one-sixth of the patients, were under no medical supervision. Of those under medical supervision, nearly all were supervised by three groups—the public health chest clinic, private physicians, and sanatoria outpatient departments.

Health department chest clinics supervise only one-third of the patients. In large cities almost half the patients were under health department chest clinic supervision; while in the smaller cities and rural areas only 20 per cent of the patients were so supervised.

Private physicians carry about one-third of the cases on the average, but with variation from place to place. In rural areas and smaller cities, private physicians are the most frequent single source of supervision, although the percentage under care of private physicians is only slightly higher in these areas than it is in the large cities.

Formally organized home care programs exist in only two of the cities included in this study and they supervised only 38 patients or 1 per cent of the total load.

It has been widely assumed that patients under supervision at home have drugs prescribed. This study shows that only a third have both bedrest in any degree and drug therapy recommended. Indeed, more cases have rest recommended than have drugs prescribed.

Of the 922 patients with no recommendations known for either drugs or rest, more than half are not under medical supervision, in so far as could be determined by the health departments participating in the study (Table 8).

The most important contribution of Table 9 is the fact that 69 per cent of the active and presumably active cases had a history of at least one hospitalization since first known to health departments as tuberculosis cases.

Table 9—History of Previous Hospitalization

	Total	Previously Hospitalized	
	Number	Number	Per cent
Total	3,159	2,350	74.4
Active and presumably active	2,272	1,558	68.6
Arrested with drug therapy	887	792	89.3

Table 10 once again adds to the understanding of our control problems by demonstrating that as high as 44 per cent of the nonhospitalized patients were last discharged from a sanatorium against medical advice.

I believe it most significant that for 25 per cent of the active cases no medical recommendations for or against hospitalization were available. Only five and one-half per cent of the cases were recorded as awaiting hospitalization. It is noteworthy that two-thirds of the patients were not hospitalized because of medical, personal, and family preferences. Observe, too, that it is recorded that almost 30 per cent were not hospitalized because of medical preferences (Table 11).

Before summarizing the material just presented, it might be well to cite certain areas of incompleteness of our data which probably reflects an inadequacy of communication. This negative finding has positive value in that it underlines areas of activity wherein improvement should be made.

Table 10—Type of Discharge of Previously Hospitalized Cases

Type of Discharge	Number	Per cent
With medical advice	1,209	51.5
Against medical advice	1,035	44.0
Type of discharge unknown or unreported	106	4.5
Total previously discharged	2,350	100.0

Table 11—Reasons Patients Not Hospitalized

Reason	Number	Per cent
Awaiting hospitalization	125	5.5
Medical preference	673	29.6
Patient and/or family preference	841	37.0
Other reasons	63	2.8
No medical recommendations available	570	25.1
Total active and presumably active	2,272	100.0
Arrested with drug therapy	887	
Total	3,159	

We have found much of the information incomplete regarding clinical status, bacteriological status, and treatment recommendations for patients included in the study. Reasons for this are many—some are due to the health departments' lack of requesting information at regular intervals, inadequacies in interagency transferral of information, lack of centralization of reports, failure on the part of physicians to report changes in diagnosis, and reluctance on the part of physicians to make a definitive diagnosis. We found that some tuberculosis hospitals report to the health department the discharge diagnosis only for patients who leave against medical advice; some give no information regarding the hospital's recommendations for care of the patient on discharge, even though continued drug therapy may be prescribed. It is not unusual for hospital reports to be sent to the health department four to eight weeks after the patient's admission or discharge. Negative-sputum reports are not sent to the public health nurses in over 30 per cent of the study areas. In 16 per cent of the areas, public health nurses receive no laboratory reports,

except by request. Such practices as these point up the need for revising policies and practices so that health department personnel will be able to provide effective care for patients.

Summary

By means of sampling technics, 37 areas of the United States were selected. These areas had a total population of almost seven million and constitute portions of 24 states.

Roughly half (55 per cent) of the significant case load is in hospitals.

Roughly half (45 per cent) of the significant case load is at home.

Of those at home:

1. Three-fourths have been known to health departments for less than five years.
2. Half are 45 years of age and older.
3. In the age groups over 35 there are more than twice as many males as females.
4. Eighty-seven per cent are in advanced stages of disease.
5. Sputum status is unknown in almost half.
6. One-third are reported as under care of private physicians.
7. Forty-four per cent of active cases have had drugs recommended; 40 per cent of active cases have had neither drugs nor bedrest recommended.
8. Three-fourths of all cases had a history of previous hospitalization.
9. Almost half of all cases in the study were discharged from hospitals against medical advice.
10. For one-fourth of active cases, the supervising agencies were unable to obtain information about recommendations for hospitalization.
11. Two-thirds of the patients were not hospitalized because of medical, personal, and family preferences.

The availability of clinic, public health nursing, and social services is directly related to density of population; in rural areas almost half of the study population had no clinic services; 10 per cent had no public health nursing services; 80 per cent had no social services other than financial assistance as provided by departments of public welfare.

Gifts of Journals to Other Countries

The continuing difficulties of international remittances have cut off individuals and libraries in many overseas countries from the regular receipt of the American Journal of Public Health. In many of these instances it is virtually impossible to remit funds in United States dollars sufficient to continue these subscriptions.

The Executive Board of the American Public Health Association, taking cognizance of this situation, has commended those members of the Association who, having access to copies of the American Journal of Public Health other than their own subscriptions, have directed that the copies normally coming to them should be sent instead to those in other countries and made available to a larger readership. The Executive Board has suggested that this pattern might appeal to other members and Fellows of the APHA and that through this channel many additional bridges of international understanding might be built.

Such gift subscriptions, at no additional cost to the giver, can be sent either to persons known to the donor or to those known to the APHA office as being in need of the copies. Communications should be addressed to the Executive Secretary, APHA, 1790 Broadway, New York 19, N. Y.

Ground Disposal of Radioactive Wastes

ROY J. MORTON, C.E., F.A.P.H.A., and EDWARD G. STRUXNESS

Though this discussion is addressed directly to sanitary engineers and their colleagues who have been charged with the protection of the environment, it will prove of compelling interest to all who have any concern with the future.

The production and utilization of nuclear energy has expanded during the past ten years into a nation-wide, multipurpose industry with a capital investment of over six and a half billion dollars.[5] Becaues of the inherent nature and rapid expansion of nuclear energy operations it was inevitable that the disposal of their unused by-products would present industrial waste problems of unusual difficulty. This was recognized and as these problems developed, they have been met, primarily through research and development activities, broader in scope and more intensive in character than the attacks upon waste disposal problems of any other major American industry in its early development.[1]

In day-to-day practice at nuclear energy installations the Atomic Energy Commission and its contractors have established and maintained high standards of health protection. Through the combined efforts of engineers, scientists, and others with specialized knowledge, the hazards from radioactive wastes have been kept to a minimum. It has been proved that large quantities of radioactive materials can be handled and controlled without endangering the public, although the costs have been relatively high.

Under the Atomic Energy Act of 1954 efforts are now concentrated upon the further expansion and technological development of nuclear energy for civilian peacetime uses. The "Atoms for Peace" movement is tremendous in its scope and implications. Foremost among the aims of this movement are the development of central station nuclear power plants and the evolution of a widespread competitive nuclear power industry. Many other large-scale industrial uses of nuclear energy are being studied and developed. From the viewpoint of radioactive waste disposal this expansion of nuclear energy activities into the field of private enterprise will present many problems. Sanitary engineers and others with experience in handling the waste and pollution problems of other industries will be needed to aid in the disposal of wastes from nuclear reactors and associated processes.

The purpose of this paper is to review briefly the nature of nuclear energy wastes in relation to disposal methods, to mention some of the methods of disposal that are now under active consideration, to discuss more specifically the possibilities of utilizing soil in safer and cheaper disposal facilities, and to describe the proposed system of waste disposal at the Oak Ridge National Laboratory as one example of ground disposal methods.

Radioactive Waste Problems

Sources and Kinds of Waste

As used here, the term radioactive wastes refers to radioactive materials and associated by-products incidental to the peacetime utilization of nuclear energy. It includes materials of no value that might escape or be released to the evironment and those that must

be retained in order to prevent possible hazards or for later recovery. We shall not consider radioactive contaminants from nuclear weapons or military activities, nor naturally occurring radioisotopes that may be accumulated by natural processes.

Radioactive wastes may come from numerous sources and vary widely in quantity, physical form, levels of radioactivity, toxicity, and admixture with extraneous chemicals or other materials. For example, wastes may be in the form of liquids, solids, gases, or aerosols; may present either minor danger or very serious hazards depending upon the types and quantities of radioisotopes present; and may be relatively easy or quite difficult to control depending upon the elements that are radioactive and their chemical form. Nonradioactive chemicals in the wastes may be toxic or may further complicate the problems of waste treatment or disposal.

As in the case of other industrial wastes, the sources and characteristics of radioactive wastes must be evaluated carefully. This must take into account not only the potential hazards but also the methods of treatment and disposal that may be considered. Information regarding these problems has been made available in published articles and reports, for example, those by Wolman and Gorman,[1, 2] Lieberman and Gorman,[3] and Joseph and Morgan.[4]

Liquid Wastes

In this discussion liquid radioactive wastes are of particular interest. They may present treatment and disposal problems because of large volume, high levels of radioactive contamination, fluidity, acidity, or high salt content. With regard to levels of radioactivity liquid wastes may be classified as:

Low Level—Usually these are large-volume wastes such as drainage from laboratory areas and decontamination operations or water used in basins to shield operators during work on radioactive materials. The usual range of activity is from trace contamination up to $10^{-3}\mu c$/ml. As a rule the dissolved salt content is low. Wastes with very low levels of activity may be dispersed into the environment, depending upon the specific radioisotopes present, and those with higher levels may be partially decontaminated before release.

Intermediate Level—Intermediate wastes may come from various chemical processes or from relatively large experimental projects. They may contain as much as 1/10 curie of radioactivity per gallon, must be shielded, are often high in dissolved chemical content, and present difficult problems in disposal. They are not suitable for release to the environment without very effective decontamination.

High Level—High level liquid wastes usually contain large amounts of dissolved chemicals, and may be highly acid or alkaline. They range from 1/10 curie to 500 curies of radioactivity per gallon and it is probable that some power reactor process wastes will be of even higher activity levels. Although small in volume these are the wastes which present the most difficult problems in shielding, handling, and disposal.

Prospects of Widespread Development of Nuclear Power

There has been much speculation and many estimates as to the probable extent of nuclear power development. Future trends are uncertain but from the progress that has already been made and from careful surveys by various groups, there is no longer any doubt that nuclear power is feasible; that it will be greatly needed to increase power resources for regular and special needs; and that it must be integrated into the financial and administrative pattern of governmental and business operations.

For example, recent activities of the

Mr. Morton is associate leader and Mr. Struxness, leader, Power Reactor Waste Disposal Project, Health Physics Division, Oak Ridge National Laboratory, Oak Ridge, Tenn.

This paper was presented before a Joint Session of the Conference of Municipal Public Health Engineers and the Engineering and Sanitation Section of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 16, 1955.

Atomic Energy Commission are reviewed in the semiannual report of the AEC for January-June, 1955.[5] The opening sentence of this report says: "Bulking large in the record of atomic energy development of the past six months has been the swift advance of the Atoms-for-Peace program around the world." The summary of this report and its section devoted to the civilian power reactor program indicate that the AEC expended more than 150 million dollars for reactor development during the past fiscal year. Industrial study groups participating to advance the development of competitive nuclear power were increased from 18 to 25 with 81 individual organizations now in the program.

Studies and reports on the prospects and feasibility of nuclear power have been made by organizations representing numerous industrial concerns and research institutions. One such report, released earlier this year, estimates that by 1963 companies engaged in manufacturing only the component parts of reactors may be doing a business of 700 million dollars per year, and that before 1965 large nuclear energy plants will be able to produce industrial power on a large scale and at competitive costs.

A common method of estimating the future magnitude of nuclear power production—and incidentally of the reactor waste problem—is in terms of the total electric power consumption. One such estimate by Joseph and Morgan points out that the 1953 consumption of electric energy in the United States was 2,750 kwh per capita per year. Assuming that by the year 2000 the population of the United States will double, that the per capita consumption of electric energy will triple, and that 10 per cent of the increase in electric energy produced will be generated by nuclear reactors, these workers estimate that the nuclear power produced in the year 2000 will be 2.2×10^{11} kwh per year.[4] To generate this amount of power would require the continuous operation of more than 400 nuclear power plants of the announced capacity of the first civilian power reactor now under construction at Shippingport, Pa.[5]

Disposal of Power Reactor Process Wastes

The operation and maintenance of nuclear power reactor installations will produce the several types of wastes discussed previously. Of greatest concern are the high-level wastes that result from fuel processing. Periodically it is necessary to remove from the reactor and to process the fuel for recovery of unreacted fuel, and new fissionable material. The high level waste solutions come from the chemical processing plant, which may be located at the reactor site or possibly at some other location to process fuel from several reactors. At the time of removal from the reactor, the irradiated fuel contains the entire spectrum of fission products but after "cooling" for radioactive decay and processing only a few of the remaining fission products are of great concern in the handling and disposal of wastes. Reactor fuel processing and reactor process wastes have been discussed in a paper by Culler,[6] and in other publications.[10]

Radioactive wastes from chemical processing plants are now stored in large steel or concrete tanks for indefinite periods of time. Structural tanks are used for waste storage because of the present uncertainties regarding ultimate disposal. This is not disposal in the true sense and is regarded as a temporary expedient until methods of ultimate disposal can be developed and evaluated. In addition to the high cost, ranging from 37 cents to $2 per gallon,[4] storage tanks have other limitations including finite capacity, uncertain durability, vulnerability to accidents, and the serious hazards which would result from disruption as by

earthquake or explosion. Since the average half-life of a mixture of aged fission products is about twenty years, storage for at least two hundred years must be considered. This long-time storage requirement plus the anticipated extent of nuclear power development focuses attention on the need for other more satisfactory methods of disposal.

Sanitary engineers who are concerned with radioactive waste problems must learn to think quantitatively of the types and amounts of radioactive materials involved and of the maximum permissible levels for release to the environment. A quantitative prospectus of fission products from nuclear reactors has been prepared by Culler, Terrill and others.[6, 7] Maximum permissible human exposures to radioisotopes have been studied carefully and recommendations have been published in a National Bureau of Standards Handbook.[8]

It is apparent that the large quantities of fission products that will be produced by a power reactor industry cannot be released without control and many proposals have been studied for concentrating and fixing reactor wastes in insoluble form. With regard to particular isotopes contained in the wastes, some are designated as "critical nuclides" which are the most hazardous, and certain radioisotopes have value for research and industrial uses. Waste processing is being studied in an effort to find low-cost methods of removing the critical nuclides and the possibly useful radioisotopes by separation during processing. If this is feasible it can greatly reduce the potential hazards from the remaining waste constituents.[9]

Proposed Methods of Disposal

A great deal of consideration is being given to the possibilities of disposing high level wastes into the oceans. Oceanographers, submarine geologists, and marine biologists ask themselves questions that must be answered before the feasibility of ocean disposal can be determined. Do the wastes remain in solution or do they precipitate out? What is a desirable physical or chemical form for the wastes? What are the patterns and magnitudes of circulation in deep and shallow waters? What are the effects of radiation on marine organisms? Will the radioisotopes affect the productivity of the organisms? Will the wastes affect the value of food that is taken or may be taken from the sea? These questions, and others, must be answered before recommendations concerning ocean disposal of radioactive wastes can be formulated. Moreover, the transportation costs involved may make this method impracticable.

An analogous situation exists with respect to ground disposal of high level wastes. It requires the solution of several general problems related to the effects of radioactivity, density, and heat released by these wastes when placed into the ground, and the solution of specific problems in geochemistry and soils engineering at proposed disposal sites. Some encouragement, however, is derived from the suggestions of geologists that containment formations exist in this country where such disposal may be possible. Salt formations in Michigan, Kansas, along the Gulf Coast, and southwestern United States; regional aquifers in middle and southwest United States; structural troughs in eastern United States; and closed valleys in western United States, are among those suggested. Further study will be required before ground disposal of high-level wastes can be practiced on any broad scale.

The Concept of Ground Disposal

Soils have the property of adsorbing or exchanging ions from solutions in contact with them. However, the capacity to exchange with specific materials

is influenced by the concentration of the ions to be exchanged, the kind of ion and its valence state, the electrolyte or salt concentration of the solution, the pH of the solution and of the soil, soil texture, and chemical properties of the soil. Because of the large volumes of soil available in most locations, its potential capacity for sorption of wastes is great. From the viewpoint of safety, soils tend to resist disruption and dispersal by accident and to retain the radioactive materials attached to them. For this reason, shallow ground pits of suitable design and location may be safer waste receptacles than structural tanks.

Complete Retention

For complete retention, the waste pit should be located in an impervious soil formation. Unless the soil in which the pit is located is naturally impervious the pit must be lined or the surrounding soil made impervious to prevent passage of radioactive materials into the ground water. An impervious seal may result from the interaction of the wastes and the soil, as in the case of a highly acid waste solution in contact with a limestone or dolomitic formation. Whether the liner is prepared, or develops as a result of chemical interaction with the wastes, it must be chemically resistant, radioresistant, temperature stable, and economical. To increase the probability of permanent retention and to decrease the accident hazard, additional measures must be taken to immobilize the mass of waste material within the pit.

Partial Retention and Seepage

In partial retention and seepage, use is made of the ion exchange properties of the soil surrounding the pit to separate out and hold some of the radioactive constituents of the waste. An ideal arrangement would be one in which all of the radioactive isotopes were removed from the waste solution and fixed to the soil as the solution passes through the first few inches or feet of the pit wall and bottom.

Between these two extremes of complete retention and partial retention plus seepage, many intermediate schemes may be considered. For example, a pervious liner may be used which has a high exchange capacity for the more critical isotopes in the waste. The useful life of such a liner will depend upon its total exchange capacity. Another intermediate method would be the disposal of pretreated wastes by seepage, the more critical nuclides having been removed prior to discharge of the wastes into the soil.

Limitations of Ground Disposal

A major limitation in the application of the concept of complete retention in soil pits is that impermeable soil formations are generally nonexistent. Improved methods for evaluating particular disposal sites by hydrologic technics, and also materials and designs for making pits completely retentive must be developed and tested. This requires specific research and development studies followed by experimental field installations.

Disposal of radioactive waste into pits for partial retention and seepage will depend upon adequate adsorption and ion exchange capacity of the soil which must be determined. The conditions of ground water movement must be studied in detail, including stratigraphy, texture, porosity and other properties related to possible movement of wastes through the soil. Control of the wastes leaving the pit is lost unless fixation takes place at or close to the point of contact with the soil.

Any proposal for the disposal of large quantities of radioactive wastes either into shallow or into deep ground formations will require detailed hydrologic

and geologic explorations and related studies of the characteristics of the wastes in relation to underground flow. Methods of monitoring to determine the direction and extent of flow of waste constituents must be developed. Corrective measures, such as grouting, diversion of rainwater from the area, or discontinuance of use, should be evaluated and available in case hazards appear to be developing.

A Proposed System of Ground Disposal

At the Oak Ridge National Laboratory site (ORNL) there are four primary rock formations identified as the Rome sandstone and shale, Conasauga shale, Knox dolomite, and Chickamauga limestone. Of these, the Conasauga shale was considered to be the most suitable for the location of waste pits because it was the most impermeable and was at least 1,500 feet thick. Ground water occurs under water-table conditions and at depths ranging from ground water seeps at the surface to about 35 feet.

The system of waste disposal at ORNL includes use of local ground areas, particularly of the Conasauga shale formation, to aid in the disposal of low-level, intermediate-level, and ultimately, of high-level liquid radioactive wastes. The disposal facilities are being developed and evaluated by laboratory and field studies followed as soon as feasible by full-scale operating installations.

Low-Level Wastes

Waste water drainage from the laboratory area, containing small amounts of radioactive materials and dissolved chemicals, has been disposed of by dilution through White Oak Creek into the Clinch River. A treatment plant, to be completed early in 1956, will partially decontaminate the low-level wastes by coagulation and water-softening processes. Sludge from this treatment plant is to be disposed to waste pits located in the shale formation and within the controlled area of ORNL.

Intermediate-Level Wastes

Three waste pits, located in the weathered Conasauga shale overburden, have received approximately two million gallons of salted, highly alkaline liquid wastes containing about 27,000 curies of beta activity (Cs^{137}–Ba^{137}, 60 to 77 per cent; Ru^{106}, 12 to 40 per cent; and Sr^{90}–Y^{90}, 0 to 11 per cent). The total solids concentration of these wastes averaged about 30 to 35 per cent of which the principal stable constituents were Na^+, NH_4^+, and NO_3^-.[9]

Sampling and radiologging wells, provided for the purpose of monitoring, have shown that radioactive ruthenium and stable NO_3^- pass through the shale formations. No evidence of radioactive cesium or any other radioactive cations in any of the wells has been observed in the four years that the pits have been in operation. The underground movement of wastes corresponded with geologic and hydrologic findings of ground water flow in the area.

The pit construction cost of about 1.5 cents per gallon of waste capacity may be compared with a bid proposal of 75 cents per gallon of capacity for a gunite-lined, steel tank. The use of these pits has resulted in a reported annual saving of about $63,000 as compared with evaporation and storage in underground tanks.

High-Level Wastes

The waste disposal project in the Health Physics Division of ORNL is an integral part of the over-all reactor development program of the laboratory. Its main purpose is to develop and demonstrate the successful use of ground disposal methods in this area for reactor

process effluents and similar high-level liquid wastes. The approach includes definitive studies of the technical factors involved and conservative engineering application of available knowledge and criteria.

The following outline gives some examples of the field and laboratory studies upon which the work in this program is based:

To determine the physical properties of the soil and rock which underlie the waste disposal area, a program of geologic mapping, test drilling, pressure testing, and pump testing is being conducted in cooperation with the U. S. Geological Survey. This information on the geologic and hydrologic features of the area is needed for assurance of safety in the design of high-level waste disposal receptacles.

The possibility of incorporating fission products into an insoluble ceramic mass is under investigation. The aim of this work is to obtain economical mixtures, which will sinter at temperatures below 800° C. It is hoped that sufficient heat from radioactive decay is available for the fusing process. Fusing these critical radioactive isotopes in situ will generate contaminated aerosols which must be de-entrained and the effectiveness of river sand in air filters for this purpose is being studied.

The feasibility and effectiveness of various asphaltic and mineral pit liner materials is being investigated. Such materials, being quite impermeable or possessing specific ion exchange properties, may be used to contain the critical isotopes within the pit until they will be immobilized. It is also possible that gels produced by the interaction of limestone or dolomite with acid waste solutions to form natural liners will prove to be effective.

Pretreatment to make the wastes less hazardous and more acceptable for disposal is under investigation. Several chemical processes show promise for removing the critical nuclides from acid and highly salted solutions. Other studies are directed toward determining the exchange properties of the local soil for the various components of the waste solution and the effect of the waste solutions on soil properties.

The ecological implications of radioactive waste disposal are recognized. A related program in the Health Physics Division of ORNL includes long-range experimental studies of the effects of ionizing radiation upon natural biological populations. In the location and design of waste disposal facilities, knowledge of the potential harm to local or distant biological resources is essential.

Experience in the field and laboratory studies shows that pit disposal may be promising and may serve for the disposal of high-level wastes. However, before pit disposal may be applied directly to high-level wastes additional studies are indicated including: (1) the effects of interactions between soil and waste materials; (2) the movement of critical nuclides through various soil formations; (3) the effects of high concentrations of stable salts, such as aluminum, nitrates, and various solvent and complexing agents, upon the ability of the soil to retain radionuclides; and (4) the underground flow pattern of waste solutions as compared with ground water flow. While these studies will continue at ORNL, there is need for similar studies at other sites where soil disposal is contemplated.

Conclusion

The disposal of radioactive wastes may well prove to be one of the limiting factors in achieving optimum benefits from the general usage of nuclear energy. In the program of radiation protection, environmental exposures are most important and control of the environment is the most fruitful field of endeavor. During the present period of expansion the sanitary engineer has an opportunity and a challenge to prepare himself and to draw upon his previous experiences in helping to find rational solutions to the problems of radioactive wastes. He must gain an acquaintance with the principles of nuclear phenomena and with the technics of radiation monitoring and control. With regard to ground disposal of radioactive wastes, the sanitary engineer should arrive at decisions based upon an understanding of the hazards and a thorough knowledge of the scientific bases for particular proposals.

REFERENCES

1. Wolman, Abel, and Gorman, Arthur E. Disposing of Radioactive Wastes—A New Problem. Wastes Engin. 26:280-282 (June), 1955.
2. ————. Waste Materials in the United States Atomic Energy Program. USAEC, Division of Engineering, Wash-8, Jan. 12, 1950.
3. Lieberman, Joseph A., and Gorman, Arthur E. Treatment and Disposal of Atomic Energy Industry Wastes. Am. Soc. Civil Engin. Proc. 80: Separate No. 422 (Mar.), 1954.
4. Joseph, Arnold B., and Morgan, James M., Jr. Radioactive Wastes in the Atomic Energy Program—The Problem of Disposing of High-Level Wastes. Baltimore, Md.: The Johns Hopkins University. Mar. 31, 1955. (Special report for limited distribution.)
5. Atomic Energy Commission (Semiannual Report). Major Activities in the Atomic Energy Programs, January-June, 1955. Washington, D. C.: Gov. Ptg. Office (July), 1955.
6. Culler, F. L., Jr. Notes on Fission Product Wastes from Proposed Power Reactors. Oak Ridge National Laboratory, ORNL, CF No. 55-4-25, March 4, 1955. (Declassified April 6, 1955.)
7. Terrill, James G., Jr.; Moeller, Dade W.; and Ingrahan, Samuel C. II. Fission Products from Nuclear Reactors (A Quantitative Prospectus). Am. Soc. Civil Engin. Proc. 81: Separate No. 643 (Mar.), 1955.
8. National Bureau of Standards. Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentrations in Air and Water. Handbook 52. Washington, D. C.: Gov. Ptg. Office, Issued March 20, 1953.
9. Straub, Conrad P., and Struxness, Edward G. The Impact of Radioactive Waste Disposal on Chemical Processing. Paper presented at the meeting of the American Nuclear Society at Pennsylvania State University, State College, Pa., June 29, 1955 (multilithed for limited distribution).
10. Peaceful Uses of Atomic Energy. Proceedings of International Conference in Geneva, Switzerland, 1955. To be published by United Nations.

Fluoridation

Again a fresh bundle of evidence has come along that makes even more insistent the question why is New York City delaying fluoridation of water supply to reduce dental decay in children. Completion and analysis of a ten-year test in Newburgh and Kingston, N. Y., bring "irrefutable evidence," according to Dr. Herman E. Hilleboe, State Health Commissioner, that fluoridation of drinking water is safe and effective. Children who had drunk the treated water all their lives in Newburgh showed 58 per cent less dental decay than those in nearby Kingston who drank untreated water.

For the third time the New York City Board of Health is bringing in a report favoring fluoridation. Four years have passed since the American Public Health Association said: "New York City is most strongly urged to fluoridate its water supply as soon as possible." The highest medical and dental authority throughout the land concurs in support of fluoridation. The cost involved is insignificant—except in the damage done to children by delay. We ask again, What are we waiting for?

(This editorial was published in the New York Times, December 15, 1955.)

The Health Officer's Job in the Control of Viral Diseases

JOHN E. GORDON, M.D., F.A.P.H.A.

A broad view of the communicable diseases of viral origin, this paper becomes an impressive plea for local health department participation in field studies, still an essential ingredient in productive research.

Knowledge of viral disease came after that of bacterial infections; it also developed more slowly, with the main volume of contributions in the past 10 years; it is now a rapidly expanding field. The state has been reached where technical advance has passed practical application. The popular diagnosis of the day, that the patient "has got a virus" eventually will not suffice, any more than did the older diagnosis of "a fever."

The health officer is familiar with many virus diseases—smallpox, rabies, and a number of the common communicable diseases of childhood; he has faced many times the problems of control, and working procedures in their management have become more or less fixed. The difficulty lies in the new facts progressively brought forth about these old familiar processes, and still more in the continuing addition of new viruses, sometimes of whole new groups of viruses. To complicate matters, as virologists have expressed it, there are newly discovered viruses seeking a disease as well as the more orthodox situation of a disease looking for its viral agent.

The practicing physician is often unfamiliar with these facts because, until recently, virology had little attention in the curriculums of medical schools. The natural move is to turn to the health officer for advice in diagnosis, epidemiology, and management as has been his custom in matters of communicable disease. The health officer needs to be informed, if for no more than prestige.

The more practical consideration is the stream of shining discoveries that continues to come off the scientific assembly line. They have accumulated faster than they have been put to use—to put them to use requires understanding of what they are and for what they are. The first item in this dissection of the job of the health officer in control of viral diseases becomes evident. The days of standing by in easy contemplation of this new field are over; it becomes necessary to take part in the game. In essence this means going back to school again, not formally, but with the available texts on viral diseases, of which there are several, and with the departmental journals, in most issues of which are new reports on viruses and their behavior. The recommended course of study is attractive.

A major part of the progress in control of communicable diseases has been with infections due to bacteria and their toxic products, where antibiotics and chemotherapeutic agents have permitted a sudden surge forward. These materials have not helped greatly in the control of virus infections which remain the hard core of the communicable diseases.

Virus diseases are themselves a challenge. They include some of the most common and some of the most danger-

ous. Some arouse an emotional reaction beyond most morbid processes. Others are among the most curious and the most obscure, and they clearly include the main part of the newly discovered. The manual of the American Public Health Association, Control of Communicable Diseases in Man,[1] includes 20 diseases caused by known viruses and nine others in which a virus etiology is more or less strongly implicated—in all, 29 diseases of the 118 there listed. That little book has the nucleus of what is known of control measures and is drawn upon in this endeavor to derive principle.

General Control Procedure

The principles in control of viral disease are those applicable to communicable disease in general, although method often varies and technical procedure commonly has individuality. These principles are now examined as they relate to viral diseases and to the activities of health officers at state and at local level.

Field Study—The local health officer has the main responsibility for control of viral and other communicable diseases. Most state health departments engage in few direct control activities, being concerned more with investigating unknown features of disease behavior and the improvement of control procedures. Under any circumstance the local health officer is the first to see disease in nature; its recognition depends upon his acuity; its exploration on his initiative.

A first essential is to lose the established awe of viral infections. They are no longer mysterious; more is known of some of them than of many bacterial diseases. This holds despite accumulating evidence which predicates existence of a masked problem of impressive extent, resting in numbers of unrecognized viruses continuously or periodically circulating in ordinary populations. The infections they cause are not defined clinically or etiologically.

The direct objective is those viral diseases of recognized occurrence and the need is for field studies of the Pickles [2] variety. This health officer in a little English town of 285 persons, by simple observation of disease behavior in his local community, has made repeated contributions to epidemiology and to control measures. Curiously enough, his most significant work was in viral diseases—chicken pox and herpes zoster, infectious hepatitis, and Bornholm disease. Such practical field study defines the nature and extent of the problem at hand and directs control measures. It also gives opportunity for a kind of research open to few others. The health officer at state level has obligations to support such observations with consultation, advice and appropriately with material aid in facilities and skilled workers. In this he furthers the particular function of his own office, just stated.

Laboratory Facilities—With few exceptions, clinical means fail to establish with any certainty the etiologic identity of viral infections. Consequently, laboratory facilities assume greater importance in a control program than with most communicable processes. Practical diagnostic procedures are available for a goodly number of viruses. The first consideration here is provision of laboratory facilities, ordinarily on a state basis. These services are costly and the number of qualified workers is limited.

The more populous states have established their own laboratories and more

---

Dr. Gordon is professor of preventive medicine and epidemiology, Harvard University School of Public Health, Boston, Mass.

This paper was presented before the Health Officers Section of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 15, 1955.

will do so. An occasional state necessarily will have to provide individual facilities because of geographic isolation from centers where virus studies are done. In most instances the practical arrangement is to establish a working arrangement with one of the 30 cooperating laboratories of the Public Health Service or sometimes with a university laboratory working with viruses. The immediate need is thereby promptly met and commonly at lower cost; the service is likely to be better than in a general laboratory making these examinations in connection with other interests. Duplication of services where such arrangement is possible usually is not justified.

The local health officer and the physicians of his community have need to know those viral diseases for which laboratory aid exists and, equally important, those for which it does not, this being aside from the particular services provided by the individual laboratory. Simple specific diagnostic laboratory procedures are available for some 17 viral diseases.[3] Diagnostic procedures are not available for many others, sometimes because of technical difficulties (measles); because a method is too costly or cumbersome for routine use (identification of specific arthropod-borne virus encephalitides); because the particular disease has not passed the research state (keratoconjunctivitis); or because of its comparative rarity (Newcastle disease).

The kinds of material to collect for laboratory study and how to collect and forward them is a third consideration. Etiologic diagnosis of a viral infection depends in many instances on examination of acute and convalescent stage serums for increased antibody response (influenza), and less commonly on virus isolation (herpes simplex), or identification of antigen in vesicles or crusts of lesions (smallpox), or demonstration of morphologic structures in tissues (rabies). The Association manual on Diagnostic Procedures for Virus and Rickettsial Diseases,[4] with a new edition shortly to appear, is a useful source of information for technical method, application, and limitations. A sound clinical description of the disease, a tentative clinical diagnosis, and the attendant epidemiologic circumstances are essential features in assuring full laboratory aid, along with the appropriate specimen.

The information just listed should reach all laboratories, physicians, and local health authorities of the state, appropriately a job of the state health officer. The preferred means are short courses or conferences on viral infections in enough areas of the state to be easily accessible to most physicians, with distribution of a prepared outline giving the essential information. Alternatively, the outline and a letter may be used.

Reporting—The reporting of epidemics by local health authority independently of required individual case report[1] progressively becomes commoner procedure. The appropriate information includes number of cases, within what time, approximate population involved and apparent mode of spread. This is especially pertinent to viral diseases of irregular occurrence and to ill-defined disease of possible viral origin. Action at the state level presumably follows.

A number of states, in formulating lists of diseases requiring individual case report, are questioning the practical benefit derived from including such common viral diseases as measles, mumps, and chicken pox. Several have simplified procedure, substituted epidemic reporting and no longer require individual case notification.

Better case reporting is usually to be had by restricting official report to those diseases for which control measures are provided, or potential control proce-

dures are under evaluation, or epidemiologic information is needed for a definite purpose. This also makes feasible periodic and regional evaluation of completeness of reporting of diseases for which report is required, again another job of the state health officer.

Isolation—Accumulating information permits a more exact prescription of required isolation for many of the commoner viral diseases. That for chicken pox varies greatly from state to state, despite the recommendations of the manual of the Association on Control of Communicable Diseases in Man, with little reason for restriction beyond the seventh day after the eruption appears. The period of communicability of mumps has been defined as a maximum of nine days after initial swelling of the parotid.

Evaluation of Control Procedures—Many programs for control of viral and other communicable diseases, and many of the individual measures used, necessarily rest on experience in other localities and sometimes under other conditions. Health authorities consequently face the need for evaluation of the procedure or program followed under local conditions. The introduction of a new immunizing agent or other control measure should carry provision in the program for the necessary records and procedure to permit assessment of its value—value in the sense of efficiency, acceptability, and safety. Ordinarily, this will be on a sampling basis and in conjunction with selected local health authorities, but is primarily a function of state authority.

Periodic assessment of the level of immunity of a population is a practical operation for several diseases, including some viral infections. In fact, this was first accomplished in systematic fashion for yellow fever. Influenza has been so approached in research programs,[5] mapping the pattern of the disease as it relates to antibody level in different population groups. With more laboratory facilities that could be done now for poliomyelitis. The procedure used by Ipsen[6] for bacterial diseases, whereby serologic epidemiology was a measure of extent of use and past performance of an immunizing agent and in direction of future effort, has attractive possibilities for viral immunizing agents.

Extent of Control

Attention now turns from general administrative and epidemiologic procedures for control of viral disease to what may be done in the specific instance. Control of communicable disease is loosely used to express any measurable degree of accomplishment in limiting the frequency of a transmissible infection. From a practical standpoint benefit is derived from establishing for a disease the precise and determinate limitations of what may be expected in the way of control using currently available methods. Control is relative.

Situations exist where no procedure in common use can be relied upon as a means of effective control of the disease or of epidemics; chicken pox is a good example. Control approaches an end point in effectiveness when a disease is eliminated from a region or a part of a region for long periods of time, as rabies in England or smallpox in Massachusetts, although lacking assurance that the conditions which permit its reentry and propagation have been securely removed. Intermediate objectives can be established to advantage as a means for determining the relative emphasis to be accorded individual diseases in a general program and to escape the useless endeavor to stretch existing measures beyond their innate capacity.

Limited control is in evidence when designed measures result over an ap-

preciable time in a lesser frequency of cases and deaths than characteristic for that time and place; the disease persists at an established lower level. Effective control may be considered to exist when incidence oscillates along a trend line consistently directed toward lower levels, certain periodic or irregular departures from that course being accepted. Full and satisfactory control is achieved when available measures prevent a significant increase in cases and deaths under the force of material changes in environment. Tuberculosis in Europe and the United States is under effective but not complete control, as the increased rates of the recent world war plainly demonstrated. Viral diseases may be grouped according to this scheme as a guide to control efforts.

Control Ineffective—First, a number of viral diseases are to be firmly set aside as offering no possibility of practical control by methods now in common use; rubella and chicken pox are examples. With primary atypical pneumonia, the common cold and other acute upper respiratory infection, herpangina and pleurodynia, general measures directed toward crowding and increased aggregation of people, the promotion of resistance through optimal diet and rest, and the attempt to limit transmission by voluntary isolation or rest in bed are reasonable procedures, but with no promise of material result. The control of infectious mononucleosis, keratoconjunctivitis, and a number of other infections of presumed viral origin is within the province of research rather than practice. For mumps active immunization offers partial control under special circumstances, as aggregated young adults, but scarcely in respect to general populations.

Ecologically Excluded—Under present conditions health officers of the United States can eliminate a second group of viral diseases from practical planning. Phlebotomus or sandfly fever and Rift Valley fever are not known to have occurred in nature in this country; yellow fever and dengue fever have long been absent. With the reservation that the last two are not wholly outside probability—complacency is unwarranted and warning has recently been sounded about yellow fever—the group may be dismissed from practical calculation in most parts of the country.

Practical Obligation—Control measures for a third group are established with sufficient certainty to assure practical accomplishment and to require inclusion in any public health program. The anticipated result is uneven from one disease to another, but the diseases themselves are broadly prevalent and in some instances are of relatively frequent occurrence.

Smallpox vaccination presents a situation where the extent of control is limited only by the effort expended. If man has the capacity to eradicate an infectious disease from the human population, smallpox seemingly is that disease. Vaccination suffices as a method, but a goodly corps of public health nurses would be needed to persuade the diffident and recalcitrant, along with assistants of bulk and muscle having authority to deal with those who would not respond to reason. Any community can control its smallpox rate.

Immune serum globulin serves usefully in infectious hepatitis although not in serum hepatitis. Family contacts given 0.01 ml. per pound of body weight intramuscularly and promptly after exposure are passively protected even as late as six days before onset of disease and for from six to eight weeks. This is recommended as regular practice because the secondary attack rate in family groups is high; the long incubation period makes the procedure practical. Mass immunization of limited communities, schools, and institutions is not so much a question of value as of indication for its practice. Out-

breaks are commonly protracted, sometimes over two or three years, and of slow evolution rather than explosive. A comprehensive experience shows more than two-thirds of school outbreaks to end with a single case. In the absence of multiple primary cases, a practical procedure is to institute such mass protection on appearance of the first secondary cases, the usual incubation period being about 25 days.

Poliomyelitis is clearly in the list of viral diseases requiring universal attention of health officers, first because of public concern, but mainly because poliomyelitis vaccine has increased the probability of what may be accomplished in control of the disease. Advice about this immunizing agent has come from all sides and recommendations are often conflicting. An analysis of the evidence is beyond the compass of this presentation but a statement of position is made. Though the present poliomyelitis vaccine is rather surely not the best vaccine that will be produced, the comprehensive field trial of an experimental poliomyelitis vaccine in 1954 [7] proved that particular vaccine to be an efficient immunizing agent; it reduced the incidence of paralytic poliomyelitis and careful observations attested its safety within practical limits.

Large-scale production of the vaccine for general use brought question of the safety of the product so produced and the Idaho experience [8] proved that question to be well grounded. Technical changes and added safety controls were subsequently introduced. There is risk in administration of any biological agent. Even smallpox vaccine has such risk, but when profit exceeds loss to the extent that it does with smallpox vaccination marginal risk is justified. The risk with the present inactivated poliomyelitis vaccine is in persisting living virus; the risk extends past the person inoculated to contacts and associates. A broad experience with the vaccine now in use indicates a practical level of safety despite theoretical considerations [9] of a potential danger; the evidence has yet to be brought together through field evaluation.

That the changes made in production also maintain antigenic effectiveness at the established levels of the field trial is yet to be demonstrated; evidence is simply lacking one way or the other. Time is needed to determine the duration of immunity, the need for booster injections and their spacing, all of which are features determining the acceptance and usefulness of vaccination. The experience thus far available is largely with school children, with suggestion that immunizing efficiency has a relation to increasing age which is not unexpected. An ultimate program for control through vaccination would seem to center on the preschool group as in most other instances; information about their reaction is essential.

Research toward an improved vaccine continues. Such common sense measures in prevention and control as exist, and they are few, are not to be discarded. Poliomyelitis is not conquered but advances have been made toward its control, more in recent years than in the past half century. Enough is known of the efficiency of inactivated poliomyelitis vaccine to justify its continued use with collection of data having the aim to determine some of the stated unknowns; a calculated but presumably minimal risk is recognized. Much unfinished business remains about poliomyelitis immunization before it becomes a fully authenticated control measure.

Rabies control, through measures relating to dogs and by immunization of persons bitten by dogs, is an established function of local and state health authority. The Colorado [10] studies in management of dog rabies, the addition of hyperimmune serum as a means for protecting human beings suffering dog

bite, and improved preparations for immunization of dogs are developments with this old virus disease needing extended test and evaluation in field practice. Area control of rabies in cooperation with appropriate wildlife conservation, and livestock sanitary authorities is as much a research as a control activity. As one state health authority expressed it, fox trapping, skunk poisoning, and bat studies may appear far removed from human welfare, but identification of the reservoir of rabies and the relation of wildlife to the domestic animal population are fundamental to control.

Unfulfilled Opportunity — Accumulated studies of many years and frequently repeated emphasis still have failed to give general appreciation that the fatality from measles of infants and children under three years of age is unduly excessive. Those in ill-health, including older children, have particularly high rates. Protection with gamma globulin is effective. Supplies are now adequate and the procedure is less cumbersome than use of convalescent serum or serum of healthy adults; thus little excuse exists for the common lack of emphasis on this feature of control of viral diseases.

Active immunization against influenza with currently available vaccines achieves a substantial reduction in incidence, provided the prevailing strain of virus matches closely the antigenic components of the vaccine used. Opinion differs on duration of protection but immunization oftener than once a year appears unnecessary. Major shifts in antigenic structure of influenza virus occur and discount the effectiveness of general immunization of whole populations. The use of influenza vaccines under controlled conditions is increasingly practiced for selected groups but has not been promoted to the extent that the procedure warrants.

Regional and Limited Problems—A number of other viral diseases of the United States are of regional concern or, if general, are of limited frequency. Psittacosis is such a regional problem geographically because certain states have long been involved more than others; it is a regional problem administratively for under present regulations each state determines its own control practice. The disease is rare, clinically serious, but antibiotic and chemotherapy are effective beyond results with most viral infections. The demonstration of barnyard fowls and pigeons as sources of infection has broadened the problem of control, and at the same time lessened the attention to psittacine birds kept as pets. That deficiencies in control can be cancelled out by chemotherapy is a fortunate circumstance but scarcely to be taken as a substitute. Currently, psittacosis is a minor public health problem but the pandemic of 1930 is not to be forgotten, particularly in those states with established residual infection.

Colorado tick fever is an uncommon and relatively inconsequential disease even in affected areas which are the Mountain and Pacific Coast states of the western United States. Trachoma is mainly a viral disease of the southwest and of the Indian population. Lymphogranuloma venereum has a primary distribution in the southern states and in the Negro population, although clearly of wider spread and probably in numbers greater than ordinarily believed.

Lymphocytic choriomeningitis has as its peculiarity a dominant presence in city populations. Sporadic cases are known to appear within a city block over months or years as the virus becomes established in the mouse colony of the area. The disease is widespread and not as rare as recognized cases indicate. Some thousand cases were reported among American troops of World War II in both this country and overseas; with due regard for inaccurate diagnosis this disease seemingly

warrants greater regard than usually accorded.

A group of diseases collectively known as the arthropod-borne viral encephalitides is perhaps the most important member of this group. Eastern and Western equine and St. Louis types are recognized infections in the United States. Prevalence is in summer and early fall, commonly limited to areas and years of high sustained temperature and many mosquitoes. Infection is irregularly epidemic in dry farming areas of the midwest, southwest, and east and has persisted for successive years in hot irrigated western valley regions of the United States. The greatest incidence is in rural and suburban areas.

Most of the viral diseases in this category have control measures of appreciable value, particularly those transmitted by arthropods. The required attention in a program for control depends upon knowledge of the local situation, for this varies from one state to another.

Summary—The continuing addition of new viruses to the list of infectious agents of disease in man, and sometimes of whole new groups with complicated health relationships, discredits any idea that the communicable diseases have been conquered. Full data on the behavior of the communicable diseases in World War II are just becoming available. Of specific infectious and parasitic diseases, 27.3 per cent of reported cases were caused by viruses. Death from viral disease among all deaths of the group was 20 per cent. If cases of viral disease, including disease presumably due to viruses, are placed in relation to all communicable disease, notably with common respiratory disease added, the proportion of viral disease to the whole measurably exceeds one-half.

No other major segment of our social system has records of health and disease equivalent to those of the military services, particularly in relation to morbidity and permanent disability. The communicable diseases accounted for approximately half the total incidence of disease in Army troops of the last great war. Deaths from disease were only 5.1 per cent of all casualties compared with 75.2 per cent for battle casualties and 19.7 per cent for nonbattle injury. Disability was in inverse proportion; 85 per cent of disability was due to disease with 15 per cent distributed between the other two categories. Man-days lost in round numbers were 285,918,000 from disease, from injuries 59,863,000, and from battle casualties 72,000,000. The evaluation of a disease by the deaths it causes has always been a measure of expediency; deaths often provide the only reliable data. For many diseases, deaths are no longer as good an index of total health significance as they once were; the antibiotics and chemotherapy have introduced an element not necessarily reflected in frequency of cases and the associated disability and residual defect. Also the old view still prevails that a disease that does not kill is scarcely worthy of note. The Army data are informative in that they present evaluation of the communicable diseases in terms of total effect—death, defect, and disability. Judgment is too often on the sole criterion of death.

These same Army data, representing as they do American experience in most parts of the world, further demonstrate that to consider the communicable diseases as a problem outmoded, as a feature of bygone days, is at best provincial. In other countries, which include half the world population, the communicable diseases rank first among causes of death, aside from the costs of disability and residual defect. One or other of the six great pandemic diseases specified as quarantinable invaded every theater of operations and home troops as well; the need for vigilant control is

evident. The infectious and parasitic diseases were two and a half times as frequent in troops of the China-Burma-India theater as in troops of continental United States. Mortality had a still greater spread. Control measures evaluated on experience in America are not always so effective in other parts of the world, even when applied to an American population by American physicians.

As the practice of preventive medicine enlarges and as the composition of populations changes, neoplastic and degenerative diseases, mental disorder and traumatic injury are properly incorporated in public health programs. The gains in control of communicable diseases often permit more effort in these other fields. But fairly judged by the temporary and lasting disability they cause, the deaths that result, and the contribution they make in ultimate causation of these other conditions, the infectious diseases remain the backlog of the public health program. There is the further consideration that the communicable diseases are the place to learn the trade of disease control; more is known of their epidemiology than for any other mass disease.

The viral infections continue to provide new problems in replacement of those others of the communicable diseases which approach solution. They constitute a major and growing part of the total, warranting a firm place in operational public health. Added facilities and special staff are sometimes a need but the main requirement of the health officer is to turn the defined principles of communicable disease control to this end; acquire a reasonable familiarity with such strange fellows as the APC viruses, RI-67, Coxsackie, and the others; and through field study of viral diseases in nature accept the responsibility of contributing to this new knowledge as well as using it.

REFERENCES

1. Control of Communicable Diseases in Man. New York: American Public Health Association, 1955.
2. Pickles, W. N. Epidemiology in Country Practice. Baltimore, Md.: Williams and Wilkins, 1939.
3. Rivers, T. M. (editor). Viral and Rickettsial Infections of Man. Philadelphia, Pa.: Lippincott, 1948.
4. Diagnostic Procedures for Virus and Rickettsial Diseases, New York: American Public Health Association, 1948.
5. Davenport, F. M.; Hennessy, A. V.; and Francis, T., Jr. Epidemiologic and Immunologic Significance of Age Distribution of Antibody to Antigenic Variants of Influenza Virus. J. Exper. Med. 98:641, 1953.
6. Ipsen, J., and Bowen, H. E. Effects of Routine Immunization of Children with Triple Vaccine (Diphtheria-Tetanus-Pertussis). A.J.P.H. 45:312-318 (Mar.), 1955.
7. Francis, T., Jr., et al. An Evaluation of the 1954 Poliomyelitis Vaccine Trials; Summary Report. Ibid., Vol. 45, No. 5, Part 2 (May), 1955.
8. Peterson, L. J.; Benson, W. W.; and Graeber, F. O. Vaccination-Induced Poliomyelitis in Idaho; Preliminary Report of Experience with Salk Poliomyelitis Vaccine. J.A.M.A. 159:241, 1955.
9. Veldee, M. V. Correspondence Regarding Salk Vaccine. New England J. Med. 253:483, 1955.
10. Anderson, R. K., and Cameron, J. R. Registration Without Taxation—Denver's Approach to Rabies Control. A.J.P.H. 45:1005-1010 (Aug.), 1955.

Royal Society of Health Congress

The Royal Society of Health of Great Britain (formerly the Royal Sanitary Institute) has announced that the Health Congress for 1956 will be held at Blackpool, England, April 24–27, under the presidency of the Most Honorable Marchioness of Reading. Members or Fellows of the American Public Health Association who may be traveling in Great Britain in April are asked to notify the Secretary of the APHA, 1790 Broadway, New York 19.

Comparisons of Various Methods of Estimating the Prevalence of Chronic Disease in a Community—The Hunterdon County Study

RAY E. TRUSSELL, M.D., F.A.P.H.A.; JACK ELINSON, Ph.D.; and MORTON L. LEVIN, M.D., F.A.P.H.A.

The analytic reader will be impressed with the solid objectivity maintained throughout this study. It is revealed nicely in the final comment of the authors ". . . for chronic disease, household interviews may be expected at best to provide minimum estimates of morbidity."

This is a preliminary report upon a few observations of methodological significance to morbidity surveys. The findings presented have resulted from a survey of the prevalence and needs of individuals with illness and disability in an essentially rural population. It was conducted by the Hunterdon Medical Center in Hunterdon County, N. J., during a three-year period, 1952–1955. The original plans for two such surveys—one urban and one rural—were developed for the Commission on Chronic Illness when one of the authors was director.*

The Hunterdon survey was one of the components of the long-range program of the commission which sponsored this rural study, assisted with consultation and minor financial participation, and carried out the parallel urban study in Baltimore, Md. The Hunterdon survey also was sponsored by and assisted with extensive staff participation from the New Jersey State Department of Health. A major portion of all studies and analysis of findings has been the responsibility of the National Opinion Research Center. Primary financial support was provided by the Commonwealth Fund which also made a substantial grant to the commission to enable completion of the urban survey.

The rural survey was made under the over-all direction of one of the authors † who was serving also as director of the Hunterdon Medical Center. The National Opinion Research Center participation has been guided by a senior study director.‡

The survey findings are extensive and

* Morton L. Levin, M.D.

† Ray E. Trussell, M.D.

‡ Jack Elinson, Ph.D.

Dr. Trussell is executive officer, Columbia University School of Public Health and Administrative Medicine, New York, N. Y.; Dr. Elinson is senior study director, National Opinion Research Center, Chicago, Ill.; and Dr. Levin is assistant commissioner, State Department of Health, Albany, N. Y.

This paper was presented before a Joint Session of the Dental Health, Epidemiology, Occupational Health, and Statistics Sections of American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 15, 1955.

will deal also with the large gap between needs, as determined by team evaluation, and actual utilization. The data currently are being assembled into a sizable report which probably will not appear in final form before early summer of 1956. However, certain methodological facts are already evident. They are selected as of particular interest, because of their relevance to our very realistic need for better epidemiologic understanding of many long-term illnesses through accurate determination of prevalence and incidence in the population at large.

In the literature our present knowledge of prevalence and incidence is an accumulation of several approaches, such as household interviews; study of physician, institutional, and organizational records; and multiple screening. Much use has been made of data provided through an interview of a lay respondent by a nonmedical interviewer in a home setting where the cooperation of the respondent has to be solicited and is voluntary. Additional information has been provided by personal health diaries and by questioning physicians who have been asked to confirm, alter, or supplement diagnoses reported by their patients in household interviews. Multiple screening of large numbers of self-selected individuals, presumably well, has yielded much data which are suggestive but difficult to evaluate.

How valid are the statements made in household interviews and by physicians named as attending the reported conditions? What volume of disabling or potentially disabling conditions is not suspected as the result of multiple screening? Can a self-administered questionnaire be distributed to a population at large and return useful but less expensively acquired data? Partial or substantial answers to such questions are emerging from the Hunterdon County and Baltimore surveys. Three sets of observations now available from the rural study are presented at this time.

Surveyed Population

Enough descriptive data will be listed here to provide an over-all picture of the population studied. Hunterdon County covers about 435 square miles stretching irregularly along the Delaware River in northern New Jersey. It is an area of farms, woodlands, small boroughs, rural townships, and a few small industries. In the 1950 census (total population 42,736) the 26 municipalities making up the county had populations ranging from 486 to 4,467 with only two of 2,500 people or more. The county seat of Flemington is located midway between New York City and Philadelphia, 50 miles in either direction, and 23 miles north of Trenton, the state capital.

The year covered by the survey as the primary study period was a year (midpoints 1951–1952) in which the county was served by approximately 25 general practitioners, 12 school and public health nurses, two small voluntary agencies (dental and tuberculosis), and a traveling mental hygiene clinic. The county had no community hospital, no health department, no diagnostic facilities, and no specialists practicing within its boundaries.

Detailed population analyses are not essential to the present report. However, by comparison with the state as a whole, Hunterdon residents were above the median age, had a higher per cent above age 65, a lower per cent of nonwhite, a slightly lower average of persons per household, a lower median number of years in school, 10 per cent less engaged in manufacturing, $700 less per family median income and 11 per cent more than the state median of families with income of less than $2,000 annually. The county population was classified as rural farm 22.9 per cent, rural nonfarm

59.5 per cent and urban 17.6 per cent. The population is not a "homogenous" grouping of rural residents.

Survey Plans

The survey steps as planned and the principle reasons for their inclusion are summarized as follows:

Phase One—The utilization of a self-administered questionnaire was undertaken for two reasons. First to determine the usefulness of such a questionnaire, second to give every resident in the county an equal opportunity to participate in the survey and thus in the development of policies governing their local medical center based on findings of the survey. This step required that a self-administered questionnaire for each member of each family in the county be delivered to each household and returned on a voluntary basis. It was estimated that there were about 13,000 families with more than 43,000 members.

Phase Two—Following the use of the self-administered questionnaire, the county population was to be surveyed on an area probability sampling basis through the use of household interviews. The minimum goal for this step was to secure health histories from 4,000 family units. This number had been selected to give an estimated yield of at least 2,000 persons with "chronic" diseases. These families, since they would be representative of the county, would form the base for the next three steps of the survey. Each interview was to encompass the entire family health history within a single folder. It would attempt to ascertain for that family by a variety of question approaches the maximum amount of information available through a single interview about illness, disability, individuals in an institution, deaths in the family, and a variety of other details all pertaining to the 12 months preceding the interview.

Phase Three—In an attempt to ascertain the yield of information which could be secured by questioning physicians attending a rural population the third step of the survey was to be confidential communication with the physicians named by a sample of the individuals reporting illnesses. The information to be sought here was primarily diagnostic to allow for coding and comparison with findings reported through the self-administered questionnaire, personal interview questionnaire, medical examination, and multiple screening. One interesting methodological step was that half of the physicians were told what had been reported in the household interview, the other half were not.

The three approaches to ascertaining the health status of a population, as described, are not new in the field of morbidity surveys except for the completeness of the interview approach and certain "built-in" methodological studies. Similar projects, some on a much larger scale except for the self-administered questionnaire step, have been well documented elsewhere. The added steps made possible through the Hunterdon study are described in the following:

Phase Four—From among the total number of individuals listed in the household interviews, subsamples of stratified groups were to be drawn representing the various kinds of illness and disability reported, as well as individuals for whom no illness was reported. A total of 1,000 individuals was to be examined. These individuals were to be offered a complete evaluation by a team consisting of physicians, social worker, and public health nurse, together with such other consultants as they might need. The objective of the team was to define, with every resource available, the problems facing each of these 1,000 individuals and their families; what care they should have had in the past 12 months; and what optimum

care for them would consist of in the next 12 months. The problems found were to be classified in a variety of ways in their relation to degree of disability, rehabilitative potential, preventability, employment, income, school attendance, and other community concerns.

Phase Five—From the 4,000 families not only the 1,000 individuals referred to in the preceding paragraph, but also 8,000 presumably well individuals above age 16 at time of interview were to be offered multiple screening in an effort to detect certain nonmanifest chronic diseases.

The Survey *

Of basic importance to any such survey is the voluntary participation of the public. Without cooperation from adequate numbers of individuals, both lay and professional, the results of a survey are of limited value. Prior to the five steps of the survey it was necessary to obtain clearance with appropriate groups, insure the general alerting and cooperation of the public, followed by the steps of mapping, census taking, and division of the county into 900 areas as a basis for sampling.

In summary, setting the stage for the survey involved securing approval of the Board of Trustees of the Hunterdon Medical Center, the County Medical Society, and the Public Health Advisory Committee of the Medical Center. Letters of endorsement were received from the American Medical Association, the American Hospital Association, and the State Medical Society. Five hundred school children, teachers, and other volunteers brought up to date or created large-scale maps of each of the 26 municipalities and secured a census listing in each of 900 areas into which the county was divided by delimiting certain natural boundaries, such as roads, rivers, and railroads. More than 40 public gatherings were addressed to orient organizations to the survey. Press and radio support of the project was generous. The entire County Medical Society membership signed a statement urging the public to cooperate and this document was photostated and published by all local newspapers. Every paper serving the area carried an editorial encouraging public participation. The project was influenced by the fact that the entire county was constructively involved in the creation of the Hunterdon Medical Center to which at least 75 per cent of families had contributed and which was now conducting the survey.

With this as a background the five phases of the survey were activated in the spring of 1952 when 600 volunteers delivered questionnaires to households throughout the county. This was followed by 35 trained interviewers attempting to secure health histories during the summer from a third of the families in the county; by communication with a sample of physicians named by these families; by an intensive effort to evaluate by team approach subsamples of the stratified interviewed population; and by an invitation to go through multiple screening extended to all reportedly well people (above age 16) in the same families. This process required five months of full-scale planning and pretesting, 26 months of intensive survey work, and six months of "winding up." At least a year will be required for analysis and report writing.

The productivity of the five steps was as follows: (1) from the 43,000 individuals to whom self-administered questionnaires were delivered, 23,900 were returned (56 per cent); (2) 4,246 families (13,113 individuals) were interviewed representing 91 per cent of all sought; (3) 329 physicians (by ques-

* Credit by title cannot be given here to the many staff members, consultants, and volunteers who performed the survey, but all are appropriately recognized in the final report.

tionnaire regarding 1,569 patients) reported conditions, 86 per cent of the physicians to whom verification forms were mailed replied, 70 per cent of the total number of forms mailed out were returned filled out by the cooperating physicians; (4) 846 individuals representing 72 per cent * of the differential probability sample sought were given a complete medical, social, and nursing evaluation; and (5) 2,679 individuals presumably well were multiple screened from the same families, representing 34 per cent of the 7,953 whose participation was requested.

Methodological Observations

Three selected methodological observations which have significance for morbidity surveys have been chosen from among many for presentation.

1. Validation of a household interview by written questionnaires sent to physicians named as having attended the reported conditions.

It has been common practice to request information from physicians named by respondents in household interviews. The physician customarily has been told that what the patient said was wrong. He has been asked to confirm or alter the patient's diagnosis and to list or even check list other conditions that were present. This procedure of telling the physician what the patient said has been questioned. Such a step has been regarded as destroying the independent nature of this way of securing morbidity data. Among other "built-in" steps, the Hunterdon study was designed to examine this question of the "contamination of criteria."

As the third step in the survey, the interview folders from a sample of interviewed families were selected for "medical verification." These were randomly divided into two groups of equal size and simple questionnaires were prepared for each physician named as having attended the conditions reported. The questionnaires were identical except that in half the cases the physician was not advised of what the patient had reported in the household interview.

Thus, 165 envelopes containing 651 questionnaires (one for each condition) went to the 165 physicians named in half the family folders selected: these forms (Form A) included the patient's reported diagnosis. As a control, 164 physicians received 687 forms (Form B) representing the physician attended illnesses in the second half of the family folders, but were not told what had been reported in the household interviews. All physicians received identical explanatory and follow-up letters and returned the forms with approximately equal degrees of cooperation.

The returns were matched according to a code which allowed for seven types of agreement. The matching was done by a physician and a statistician working as a team and according to rules which will be described in detail in the full survey report. Table 1 summarizes the results of this part of the survey.

The most striking differences found were that when the physician was not informed of the patient's reported diagnosis his own diagnosis agreed with the patient less often but he reported new conditions more frequently. The causes for these differences cannot be documented. The data also will be analyzed further in terms of selected diseases. The implications for morbidity surveys, while not clear, deserve study.

2. Validation of household interviews by medical examination of a sample of respondents.

A total of 4,246 Hunterdon families were interviewed by 35 trained and supervised interviewers, the interviews requiring from 30 minutes to six hours and averaging about one and one-half hours. The questionnaires used inquired

* Weighted.

Table 1—Relative Productivity of Two Types of Written Questionnaires Sent to Physicians Named in Household Interviews as Having Attended Respondent Reported Conditions

Degree of Agreement Between Patient and Physician	Form A—Physicians Informed of Diagnoses Reported by Patients		Form B—Physicians Not Informed of Diagnoses Reported by Patients	
	Number of Conditions	Comment	Number of Conditions	Comment
1. Perfect	320		268	
2. Close	164	528 confirmed in some degree = 92%	122	441 confirmed in some degree = 75%
3. General	27		31	
4. Vague or remote	17		20	
5. Negative statement by physician on diagnosis stated by patient	10	48 not confirmed = 8%	4	145 not confirmed = 25%
6. Reported by patient only	38		141	
7. New condition reported by physician only	131	= 22 new conditions for every 100 patient reported conditions	292	= 48 new conditions for every 100 patient reported conditions

This table is based on a study of those forms returned by physicians. Both A and B forms were returned in approximately equal numbers—75 and 72 per cent, respectively.

for each member of the family about illness, injury, or other conditions on the day before the interview, during the four weeks preceding and during the past year. They then covered a lengthy symptoms list, persons in institutions, deaths, and a long list of diseases by name.

The 13,113 individuals were then divided into six strata, ranging from people in institutions to people with no complaints, and the six groups were sampled at differential rates for team evaluation. The goal was 1,000 examinees, the yield was 846 representing 72 per cent of all whose names were drawn. This degree of success was achieved after one and a half years of hard work. The story of recruitment of a sample for examinations is a saga in itself but cannot be recounted here.

The examinations were made in the Hunterdon Medical Center by the full-time staff, a group of accredited specialists with faculty appointments in New York University-Bellevue Medical Center. Responsibility for all studies was carried by two specialists in internal medicine and one in pediatrics. These physicians had unlimited access to laboratory and radiologic services and informal and formal consultation from the other full-time and visiting consultants. For example, a review of every eighth examination record shows that for 105 persons there were (in addition to routine pelvic examinations of adult women by the gynecologist) 95 formal consultations and 1,195 tests. Two hundred families were the subject of detailed study in the home by experienced social workers. All examinees were reviewed by the social workers and the public health nurse consultant. Finally, a team conference resulted in an extensive schedule of evaluation which is the basis for the next two comparisons with data previously secured through household interviews.

Although the survey will report in

large measure on prevalence data and needs for care, reference is made here only to some problems of measuring morbidity. These comparisons provide a substantial basis for estimating over- and underenumeration in morbidity surveys when a multi-approach questionnaire is used in household interviews.

A. Overreporting by the respondent in the household interview. (This section records how successful the team was in verifying in some degree what the lay respondents had reported to the interviewers.)

When family reported conditions are considered in 21 major classifications, the following order in proportion-of-match with clinically evaluated conditions emerges as presented in Table 2.

For convenience and ease of reference we may arbitrarily place all classifications of family reported conditions into four groups (according to over-all proportion-of-match): well-matched—80 per cent. or higher; fairly-matched—

Table 2—Validation of Household Interviews by Medical Examination of a Sample of Respondents (Total 846)

A. Proportion-of-Match for Family Reported Conditions with Subsequent Medical Examination

Order	Classification of Condition (All Conditions Reported in Family Interview)	Per cent Matching Clinically-Evaluated Conditions (Weighted)	Total Cases Reported in Family Interview (Unweighted)
1.	Diseases of the eye	98	145
2.	Mental, psychoneurotic, and personality disorders	87	46
3.	Diabetes mellitus	85	28
4.	Rheumatic fever and heart diseases	80	166
5.	Neoplasms	75	67
6.	Other diseases of the circulatory system	65	198
7.	Diseases of the ear	63	57
8.	Diseases of the genitourinary system	61	97
9.	Allergic diseases	58	59
10.	Other impairments, including congenital	57	101
11.	Other endocrine, metabolic, and nutritional diseases	57	37
12.	Diseases of bones and organs of movement	56	138
13.	Dental and other diseases of buccal cavity and esophagus	53	127
14.	Other diseases of the digestive system	48	171
15.	Diseases of the nervous system	45	82
16.	Diseases of the skin and cellular tissue	34	74
17.	Symptoms, senility, and other ill-defined conditions	29	205
18.	Injuries and poisonings	24	62
19.	Diseases of the respiratory system	23	223
20.	Anemias and other diseases of the blood	19	33
21.	Infective and parasitic diseases	13	90
	Total	47	2,206

60–79 per cent; poorly-matched—40–50 per cent; and badly-matched—less than 40 per cent.

Under the above arbitrary limits we can say that only for diseases of the eye, mental, psychoneurotic, and personality disorders, diabetes, and rheumatic fever and heart diseases are family reports relatively "well" matched with clinical evaluation.

Acute conditions reported in the family interview cannot be expected to match clinically evaluated conditions established 20 months after the family interview. We find, therefore, relatively "bad" proportions-of-match for infective and parasitic diseases, diseases of the respiratory system, injuries and poisonings, and diseases of the skin.

Vaguely reported conditions, including symptomatic descriptions, are also relatively "badly" matched with clinically evaluated conditions. Reported anemias, too, are relatively "badly" matched.

Conditions which were characterized in the family interview by some index of seriousness, such as "keeping a person from his ordinary activities yesterday" or "leaving a handicap or defect" or "still bothering" were less likely to be overreported. Similarly hospitalized and medically attended conditions were less likely to be overreported.

Table 3

B. Proportion-of-Match for Conditions Found by Medical Examination of 846 People with Conditions Previously Reported by Family (for Conditions Believed by Clinician to Have Been Present in Period Covered by Family Interview)

Classification of Condition	Per cent Matching Family Reported Conditions (Weighted)	Total Conditions Found by Clinical Evaluation (Unweighted)
Diabetes mellitus	64	30
Diseases of the ear	56	83
Allergic diseases	54	51
Heart diseases and rheumatic fever	39	288
Anemias and other diseases of the blood	39	8
Diseases of the respiratory system	38	108
Diseases of the nervous system	37	85
Injuries and poisonings	32	83
Other diseases of the digestive system	31	180
Diseases of bones and organs of movement	30	197
Other diseases of circulatory system	26	320
Mental, psychoneurotic, and personality disorders	22	153
Diseases of the eye	20	470
Infective and parasitic diseases	16	73
Diseases of skin and cellular tissue	20	76
Dental and other diseases of buccal cavity and esophagus	11	192
Diseases of genitourinary system	11	230
Other impairments, including congenital	10	66
Neoplasms	10	151
Other endocrine, metabolic, and nutritional diseases	6	183
Symptoms, senility, and other ill-defined conditions, and special examinations	4	82
Total	22	3,109

Table 4—Comparison of the Total Number of Conditions Reported in Family Interviews with the Total Number of Conditions Found by Medical Examination of a Sample of 846 Respondents (Unweighted Data)

Order	Classification of Condition*	Number Reported	Number Found	Difference
1.	Diseases of the eye	145	470	+ 325
2.	Mental, psychoneurotic, and personality disorders	46	153	+ 107
3.	Diabetes mellitus	28	30	+ 2
4.	Rheumatic fever and heart disease	166	288	+ 122
5.	Neoplasms	67	151	+ 84
6.	Other diseases of the circulatory system	198	320	+ 122
7.	Diseases of the ear	57	83	+ 26
8.	Diseases of the genitourinary system	97	230	+ 133
9.	Allergic diseases	59	51	− 8
10.	Other impairments, including congenital	101	66	− 35
11.	Other endocrine, metabolic, and nutritional diseases	37	183	+ 146
12.	Diseases of bones and organs of movement	138	197	+ 59
13.	Dental and other diseases of buccal cavity and esophagus	127	192	+ 65
14.	Other diseases of the digestive system	171	180	+ 9
15.	Diseases of the nervous system	82	85	+ 3
16.	Diseases of the skin and cellular tissue	74	76	+ 2
17.	Symptoms, senility, and other ill-defined conditions	205	82	− 123
18.	Injuries and poisonings	62	83	+ 21
19.	Diseases of the respiratory system	223	108	− 115
20.	Anemias and other diseases of the blood	33	8	− 25
21.	Infective and parasitic diseases	90	73	− 17
	Total	2,206	3,109	

B. Underreporting by the respondent in the household interview. (This section records what proportion of conditions discovered by team evaluation had been reported previously in the household interview.)

As shown in Table 3, less than one-fourth (22 per cent) of the conditions found by clinical evaluation was matched with conditions reported in the family interview. This proportion-of-match is for clinically evaluated conditions believed by the examining clinician to have been present in the period covered by the family interview and which presumably should have been reported.

The proportion-of-match for clinically evaluated conditions varied greatly by type of condition. For diabetes, one out of three cases found by clinical evaluation was not reported in the family interview. Six out of 10 cases of clinically evaluated heart conditions were not reported in the family interview. Three-fourths of the clinically evaluated "mental, psychoneurotic, and personality disorders" were unreported in the family interview. Nine out of 10 "neoplasms" established by clinical evaluation were unreported in the family interview.

It was felt that this rather low proportion-of-match was perhaps not entirely attributable to failure of the family interview respondent to report known conditions or even to ignorance of existing conditions, but that a substantial part of the discrepancy might

be attributed to the thoroughness of the clinical examination and the meticulousness of the clinicians in their reporting of minor and unimportant conditions. In order to confine the analysis to the more significant conditions, a comparison was made between clinical findings and family reports for those conditions only which clinicians considered to be ". . . currently or potentially disabling. . . ." or which had been disabling in the year preceding the clinical examination. Two-thirds of the clinically evaluated conditions believed to have existed in the family interview year were considered by clinicians as "disabling" in the sense described.

The over-all proportion-of-match for "disabling" clinically evaluated conditions was not importantly higher than for "nondisabling" clinically evaluated conditions (24 per cent as against 18 per cent).

Finally, Table 4 is presented to compare the total number of conditions reported in family interviews for 346 individuals compared with what was found in medical examinations. (The reader is cautioned that this is an unweighted table and cannot be used for computation of rates or percentages.)

Comment

The data presented here are subject of course to much explanation which will be included in the final report. While these observations are brief (and much more detailed analyses will be reported subsequently), they are thought-provoking with respect to the problem of securing accurate morbidity data. Surveys such as the Hunterdon and Baltimore studies are expensive, time-consuming, and difficult. No attempt is made in this brief report to discuss epidemiologic studies of long-term illness, but the problems of accurate measurement of prevalence and incidence are evident and will require large-scale planning and financing for their further elucidation.

The data at hand suggest that for chronic disease household interviews may be expected at best to provide minimum estimates of morbidity.

Labeling Salicylates for Safety

The U. S. Food and Drug Administration recently issued a statement of policy with regard to labeling salicylates in order to prevent their misuse, particularly by children. Drug manufacturers are asked to use conspicuous package warnings that such drugs should be kept out of reach of children. The six-month period allowed for modification of present labeling ends April 15, 1956.

The FDA ruling was published in the Federal Register of October 15, 1955.

Present Status of School Health Ventilation

C. P. YAGLOU, F.A.P.H.A.

Readers whose memories go back a generation or so to the long and often acrimonious debates over questions of school room ventilation method will find encouragement in this review of more recent attempts to adopt sound, and practical, standards for ventilation engineering.

The basic requirements for heating and ventilating schools are simple and have changed but little in the past thirty years. They consist in providing a comfortable temperature with natural or moderate humidity and in supplying a sufficient quantity of outside air in order to avoid accumulation of unpleasant odors and to prevent overheating of rooms exposed to the sun. Objectionable drafts and sharp vertical temperature gradients must also be avoided.

A satisfactory temperature schedule is: study, recitation, assembly rooms, toilets—68°–70° F; corridors, gymnasiums, shops and playrooms—60°–65° F; showers and dressing rooms—75° F.

"Fresh air" requirements in schools and public buildings traditionally have been based on the quantity required to dilute offensive odors to an acceptable concentration. Recent attempts to replace this criterion with a seemingly more rational one based on bacterial content of air have not proved entirely successful. Extensive epidemiologic studies in barracks, schools, and other places of assembly have failed to show any definite relation between "sanitary ventilation" based on bacterial counts and the spread of acute infectious diseases in occupied rooms, with the possible exception of measles and chicken pox.[1-3] This is entirely in accord with the old concepts of Chapin, Winslow, and others, discrediting air-borne infection.

Another important World War II finding was that the incidence of upper respiratory infections in barracks is related not to the floor area or cubic space allowed per person, but to the number of persons housed in a room, as is illustrated in Figure 1. The data shown were obtained by Breeze, et al.,[4] on 28 recruit battalions housed in barracks of various sizes in a large naval training station. Since this study had not been adequately controlled, other factors besides crowding might have influenced the results.

The floor space in prewar schools averaged about 16 square feet per pupil, with a minimum of 12 and a maximum of 20, depending on local regulations. The trend today is to provide greater floor space per occupant with a lower ceiling height, a step in the right direction.

A study of minimum ventilation re-

Mr. Yaglou is professor of industrial hygiene, Harvard School of Public Health, Boston, Mass.

This paper was presented before a Joint Session of the American School Health Association and the Engineering and Sanitation and School Health Sections of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 15, 1955.

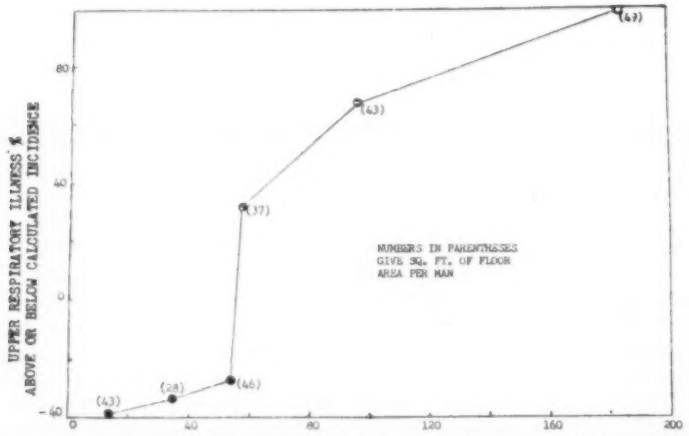


Figure 1—Number of Men per Room in Barracks. Influence of Crowding on Respiratory Illness in a Large Naval Training Station, April–September, 1943

(Data of Breese, B.B., et al., War Medicine 7:143–146 March, 1945)

quirements for controlling classroom odors was made by a committee * appointed by the Massachusetts State Health Commission (1936) to investigate ventilation and sanitation conditions in elementary and public schools of the state.[5] An outside air supply of 10–15 cfm per pupil was found sufficient to keep odors within acceptable limits for persons entering classrooms from the corridor. Similar studies conducted by the Research Laboratory of the American Society of Heating and Ventilating Engineers in Pittsburgh public schools also showed a minimum requirement of 10 cfm per pupil for odor control.[6] These values are from 25 to 50 per cent lower than those found acceptable under simulated classroom conditions in the laboratory, using outside air instead of corridor air, as the standard for odor appraisal.[7] All but one of the 20 states, which in 1930 required a fresh air supply of 30 cfm per pupil in classrooms, assembly halls, gymnasiums, etc., have since then reduced the requirement to 10 or 15 cfm, or have deleted it entirely from their codes.

The overheating of buildings due to sun is essentially an architectural rather than a ventilation problem. If treated solely as a ventilation problem, large quantities of cool air must be supplied depending mainly on the orientation of windows with reference to the sun and on the lowest temperature at which the cold air can be introduced without causing drafts. With conventional distribution systems this limiting temperature is between 55° and 60° F, and requires the introduction of from 20 to 30 cfm per pupil to prevent the interior temperature from rising much above 70° F in an average classroom exposed to the sun on one side. Rooms facing north, northeast, or northwest,

* Members of this committee were James A. Keenan, physician, Boston School Committee; James Holt, professor of mechanical engineering, MIT; and C. P. Yaglou, professor of industrial hygiene, Harvard School of Public Health. Special consultants were William McPherson, chief heating and ventilating engineer, Boston City Schools; and Arlie Buck, director of hygiene, Harvard University.

will require only the minimum air supply for odor control (10 cfm per pupil).

The high air change required for controlling solar overheating can be reduced by 50 per cent or more by the use of suitable overhangs and other shading devices, by substitution of heat absorbing glass for ordinary glass, and by improving distribution systems so as to handle air colder than 55° F without causing drafts. Therefore, any rigid specification of air supply above the minimum needed for odor control is meaningless and has no place in statutory codes. Unfortunately, there are still eight states requiring a total air supply of 30 cfm per pupil, of which at least 10 cfm must come from the outside while classrooms are in session. This regulation automatically precludes the use of natural ventilation systems even where they can be safely and economically applied.

Automatic regulation of radiators and convectors is also essential in the control of overheating, especially in rooms subjected to variable solar loads. However, exact temperature control closer than ± 2° F, is not only expensive but also undesirable from the standpoint of comfort. A certain amount of variability, not exceeding 2° F above or below the comfortable temperature level, is stimulating as opposed to monotonous uniformity of temperature. Such variability is normally provided by the lag of most thermostats when suitably located. Automatic temperature control is required by some state codes and recommended by most school boards.

Two other important factors capable of affecting comfort and possibly health are drafts and steep vertical temperature gradients. In order to reduce discomfort from these causes the air movement should be kept below 40 fpm and the vertical distribution of temperature should not exceed 1½° F per foot of height in the occupied zone. The latest school regulations of New York State specify an air movement not exceeding 25 fpm in the occupied zone, and a temperature gradient not exceeding 1° F per foot of height from the floor to the five foot level. In the State of Delaware, the air movement in occupied zones must not exceed 30 fpm.

Present Methods and Practices in School Heating and Ventilation

The kind and complexity of systems used in schools are largely governed by state and local codes, type and location of building, and funds available. From a variety of methods employed in the past the choice has been narrowed down to three principal systems: (1) jacketed space heaters, with natural ventilation; (2) direct radiators or convectors, with window air supply and gravity or fan exhaust; and (3) classroom unit ventilators with gravity, mechanical, or corridor exhaust.

Most of the states permit the installation of jacketed stoves inside classrooms of rural schools or of single-story buildings containing from one to four classrooms, provided that the heaters are properly vented to remove gases of combustion. Florida allows jacketed space heaters in schools of 10 rooms or less, while Kansas and Georgia permit such stoves in all rural schools which do not have a central system. Ventilation is usually provided by opening windows or by installing a fresh air duct piercing the floor centrally under the stove and consummating with the jacket of the stove.

The most serious drawback to the heating and ventilation of rural schools by such methods is stratification of cold air at the floor and overheating in the breathing zone, as demonstrated by studies of the reorganized New York Commission on Ventilation in rural schools of Cattaraugus County.[8] Absenteeism due to respiratory illness was twice as high in these rural schools as

in Syracuse city schools[9] and four times as high as those found in the New York City studies of the original New York State Commission on Ventilation.[10]

For schools located in clean and quiet districts, the modified "window gravity or fan exhaust system" has proved satisfactory particularly in mild climates where windows can be opened enough without causing drafts. Heating in this system is done by shielded radiators or convectors extending across the entire length of windows. Fresh air is admitted through raised windows equipped with glass deflectors, and the used air is exhausted through one or two openings, near the ceiling away from the windows, connected by ducts to a plenum chamber in the attic discharging to ventilators above the roof. Where trouble is experienced from back drafts, a heating coil is placed inside the exhaust ducts, or a fan is attached to the flues thus converting the system into a fan exhaust.

Modified window-gravity systems are extensively used not only in the south but also in Connecticut and New York, where they are permitted by law. Their main advantages are low cost and freedom from noise. The air supplied feels fresher and more stimulating than the air of mechanical systems. However, there is no evidence to show that the natural systems are healthier than the mechanical ones. According to the final conclusion of the New York Commission on Ventilation, equally good results, in so far as respiratory disease incidence is concerned, may be obtained by either window-gravity or mechanical systems supplying either 15 or 30 cfm per pupil.[11]

The chief disadvantages of window-gravity systems are the necessity of providing large individual vent flues from each classroom, limited circulation capacity, and drafts from open windows in windy weather. Although window-gravity systems are not, as a rule, specifically excluded by codes, they are automatically ruled out by the 30 cfm clause which cannot be met without using fans.

Unit ventilators are now almost exclusively used in urban and suburban schools where regulations forbid or discourage the installation of window-gravity systems. A unit ventilator consists of a metal cabinet containing a compact heater, a filter, a fan, and dampers which mix outside air with recirculated air according to the thermal requirement of the room. The heated air is discharged from the top of the unit against the ceiling to break it up into small streams before descending to the occupied zone. Each classroom is provided with an individual unit placed against an outside wall and delivering 1,200 cfm of heated air for a standard classroom of about 40 pupils. Additional heat for counteracting structural losses in cold weather, or when rooms are not occupied, is furnished by radiators or convectors installed beneath other windows of the room.

With classroom temperatures below 70° the unit admits only 10 to 15 cfm of outside air per pupil to remove odors and recirculates up to 20 cfm per pupil in order to obtain uniform air distribution. When the room temperature approaches 70° the thermostat closes the steam to the heaters, and if the temperature should continue to rise above 70° all of the recirculated air is cut off, and the unit then supplies as much as 30 cfm of outside air tempered to 55° or 60° in order to prevent overheating. This occurs even in very cold weather when the room is fully occupied and the sun is shining on bare windows. Objectionable drafts near the unit ventilator are most likely to occur during periods of maximum cold air supply for the control of overheating. Drafts of this sort are difficult to eliminate without interfering with the performance efficiency of the unit. Downdrafts from

large windows of classrooms can be controlled either by forcing warm air through a continuous slot on the window sill, or by sucking the downdraft into the slot before it spills on the floor.

Exhaust ducts are not necessary in the operation of unit ventilators as they are with window-gravity systems. Where corridor venting is permitted the used air is allowed to escape directly into the corridor through an opening near the bottom of the corridor wall, or through wardrobe openings. From the corridors the air finds it way into exits in the ceiling of the top floor and thence to ventilators above the roof. The principal advantages of classroom units are positive ventilation independently of weather conditions and control of overheating. The disadvantages are high cost, especially where exhaust ducts are required by law, fan noise and drafts near the unit, and multiplicity of motors to be serviced.

Toilet rooms, chemical laboratories, and cafeterias with adjoining kitchens are ventilated by individual exhaust systems with special hoods for chemical laboratories and kitchen cooking equipment. In auditoriums and gymnasiums the "hot blast" system is often preferred.

Possibilities for Savings by Simplification of Systems

Significant savings in costs and building cubage can be effected by substitution of some other means of exhaust for the elaborate classroom vent flues. Corridor venting is the simplest substitute with mechanical supply systems. However, this method of venting is condemned by the National Board of Fire Underwriters; it is specifically forbidden in Pennsylvania, Massachusetts, and Maine, and tacitly ruled out in other states by requiring installation of individual classroom flues regardless of ventilation system used. There are many arguments in favor or against corridor venting which need not be gone into here. The most serious objection is the danger of spreading smoke into corridors, in the event of classroom fires, thus obscuring stairways and exits.

A less objectionable substitute for vent flues is a small fan-motor unit that would exhaust individual classrooms directly to the outside through a hole cut into the wall and equipped with check louvers. Such a unit can be used with mechanical or modified window supply systems without encroaching on fire regulations. Fires would be confined to individual rooms and the smoke would be removed at the source. This, of course, does not apply to wooden construction.

Where unit ventilators are used the proposed exhaust fan can be mounted on the common fan shaft of the unit, or can be omitted altogether, as the plenum produced by the supply fan will force much of the used air directly to the outside, if classroom doors are kept closed. However, omission of the exhaust fan may conflict with local regulations as the system would revert to partial or total corridor venting when classroom doors are opened, or when strong winds restrict the opening of exhaust louvers.

The recent development of one-story schools offers good possibilities for simplification of ventilation systems. These structures are made of light prefabricated steel with varying amounts of insulation to meet most climatic needs, except in the cold northern regions where masonry walls are preferred. Economies are effected by standardization and by elimination of costly fireproofing, fire escapes, stairways and stair halls, duplicate toilets, and extra exits. Self-contained automatic boilers with forced draft eliminate the high chimney. All vent flues can likewise be eliminated in mechanically ventilated classrooms by the use of corridor vents equipped with fire dampers and fusable links. Escape from fires can be effected

simply by jumping out of the windows.

One-story school buildings, properly designed for the climate, should be particularly adaptable to suburban residential districts where land is not expensive. Their practicability in congested cities is still questionable. Architectural Forum, the strongest proponent of single-story structures, goes so far as to claim that a one-story elementary school might be by far the best investment even for the most congested districts of a city such as New York.[12] Exaggerated, as such claims might seem, they deserve serious consideration in the present school emergency.

Other means for effecting significant savings are the reduction of ceiling heights from 12 to 9 to 10 feet; adaptation of a single all-purpose room for auditorium, playroom, cafeteria, and community functions in elementary schools; simplification of cumbersome and expensive ventilation systems for wardrobes and toilet rooms required in some states, notably Massachusetts; and last but not least, elimination of costly architectural and engineering innovations which make every school building a special job.

Present Status of School Ventilation Laws

According to published information there are now 18 states, one more than in 1930, having no laws or regulations governing the heating and ventilation of public schools. In nine other states (seven in 1930) the provisions are general, stipulating only "adequate" heating and ventilation, and the remaining 21 (23 in 1930) have statute laws or state board regulations fixing various requirements which differ in the several states. All the 21 states exercising controls now require a minimum fresh air supply of from 10 to 15 cfm per pupil, instead of 20 to 30 cfm in 1930, for class, study, and recitation rooms. In eight of the 21 states the total quantity of air supplied (outside air plus recirculated air) by mechanical systems must be not less than 30 cfm per pupil or six to eight air changes per hour, a standard which can be met only by the use of fans.

Although many of the states have made progress in revising their requirements since 1930, Massachusetts, Pennsylvania, and Minnesota still retain the most restrictive regulations anywhere in force by specifying not only the results to be secured but also details of methods and equipment to be provided. The State of New York on the other hand, having had long experience with restrictions similar to those of Massachusetts or Pennsylvania, as well as experience with only general recommendations, finally has settled on a middle-ground based upon a few well established ventilation principles.

Regulations promulgated by the New York State commissioner of education, as amended in 1947, require that heating systems be designed and guaranteed to maintain certain specified temperatures in different sections of the school, with a vertical gradient not exceeding 5° F from the floor to the 60-inch level. The ventilating system must provide a minimum air change of 10 cfm per pupil to remove odors without producing drafts. The air movement in zones of occupancy must not exceed 25 fpm. For effective thermal operation in mild weather a design factor of 15 cfm is recommended. Where extensive use of a school building is anticipated in hot summer weather the department may require installation of an air conditioning system, or the use of electric fans. Special ventilation systems are required where toxic substances or strong odors are produced. Authority to approve plans and specifications for school buildings is vested in the commissioner of education.

In the opinion of the author this is

the most rational and up-to-date regulation in existence, applicable to most of the schools anywhere in this country. No restriction whatever is placed on methods or equipment and the air conditioning clause applicable to special cases is not mandatory but is subject to the determination of the authority designated to approve plans and specifications for school buildings.

It is to be hoped that other states, saddled with unduly restrictive regulations, will follow the good example set by the State of New York.

REFERENCES

1. Committee on Sanitary Engineering, National Research Council, Division of Medical Sciences. Recent Studies on Disinfection of Air in Military Establishments. A.J.P.H. 37:189, 1947.
2. Air Hygiene Committee. Air Disinfection with Ultra-Violet Irradiation, Its Effect on Illness Among School Children. Med. Res. Council, Spec. Rep. No. 283, London, 1954.
3. Wells, W. F. Air-Borne Contagion and Air Hygiene. Cambridge, Mass.: Harvard University Press, 1955.
4. Breese, B. B., et al. Influence of Crowding on Respiratory Illness in a Large Naval Training Station. War Med. 7:143, 1945.
5. Unpublished reports to the Committee on Public Sanitation, Massachusetts State Health Commission, 1936.
6. Houghton, F. C., et al. Classroom Odors with Reduced Outside Air Supply. Tr. Am. Soc. Heating and Ventilating Eng. 41:253, 1935.
7. Yaglou, C. P., et al. Ventilation Requirements. Ibid. 42:133, 1936.
8. Duffield, T. J. A Study of Rural School Ventilation. Pub. Health Rep. 44:2383, 1929.
9. Duffield, T. J. Report on Schoolroom Ventilation Study, Syracuse, N. Y. A.J.P.H. 19:64, 1929.
10. Winslow, C.-E. A., et al. Ventilation Report of the New York State Commission on Ventilation. New York: Dutton, 1923.
11. ————. School Ventilation, Principles and Practices. New York: Bureau of Publications, Teachers College, Columbia University, 1931.
12. Todays Schools. Architectural Forum (Oct.), 1949, p. 81.

Nursing Consultant Examinations

The U. S. Civil Service Commission announces an examination for nursing consultant in maternal and child health for positions in the several regional offices of the Children's Bureau. The salary is $7,570 a year. Applicants must have had appropriate nursing training, including 30 semester hours in a program of study in public health nursing, and must have had professional nursing experience, including two years of consultation in maternity and/or pediatric nursing in a public health agency.

Applications will be accepted by the Board of U. S. Civil Service Examiners, Children's Bureau, Washington, D. C., "until further notice." Full information from the U. S. Civil Service Commission, Washington 25, D. C., or from many post offices.

The Treponema pallidum Complement-Fixation Test

HAROLD J. MAGNUSON, M.D., M.P.H., F.A.P.H.A., and JOSEPH PORTNOY, Ph.D.

This report upon a satisfactory comparison of the Treponema pallidum C-F test with certain other suggested modern substitutes for the old Wassermann test is of far wider interest than merely to the laboratory directors to whom it was presented.

The following is a brief report on the current status of the Treponema pallidum complement-fixation test (TPCF) first described at the 1955 Symposium on Recent Advances in the Study of Venereal Diseases.[1] In principle, the test is simple. Virulent T. pallidum are obtained from infected rabbit testes. By differential centrifugation the treponemes are concentrated, the lipid fractions removed by successive acetone and ether extractions, and the active protein-like antigen is then removed from the dried treponemes by a 0.2-per cent solution of sodium desoxycholate. The resultant antigen is employed in a conventional complement-fixation test similar to the fifth volume Kolmer technic.[2]

Methods

In the present study all of the TPCF antigen was prepared in our own laboratory and the tests were run according to the technics we have described.[3, 4] Treponema pallidum immobilization (TPI) tests were performed in our laboratory.[5] The lipid antigen tests were performed at the laboratories of the physicians submitting the samples. The serums tested came from a variety of sources, too numerous to list in detail. Venereal disease control officers throughout the country assisted in obtaining specimens from patients with dark-field positive primary and secondary syphilis. Drs. Charles R. Rein, J. Lowry Miller, Loren W. Shaffer, and Arthur C. Curtis contributed serums from several diagnostic categories but were especially helpful in submitting specimens from presumed biologic false-positive reactors.

Results

Shown in Table 1 are the serologic test results in 395 patients with syphilis both treated and untreated. The results of tests with lipid antigens (STS), TPI tests, and TPCF tests are classified by diagnostic category. Shown in the body of the table are the number of

Dr. Magnuson is chief, Operational Research Section, Venereal Disease Program (formerly, director, Venereal Disease Experimental Laboratory, Public Health Service, Chapel Hill, N. C.), and Dr. Portnoy is bacteriologist, Venereal Disease Experimental Laboratory, Public Health Service, U. S. Department of Health, Education and Welfare, Washington, D. C.

This paper was presented before the Laboratory Section of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 14, 1955.

Table 1—Comparison of Reactivity of STS, TPI, and TPCF in 395 Patients with Treated or Untreated Syphilis

Diagnostic Category	Number of Patients	STS		TPI		TPCF	
		Number +	Per cent +	Number +	Per cent +	Number +	Per cent +
Primary	70	39	55.7	24	34.3	40	57.1
Secondary	49	33	67.3	38	77.6	43	87.8
Latent	201	164	81.6	179	89.1	175	87.1
CNS	24	21	87.5	23	95.8	20	83.3
Tabes	5	3	60.0	5	100.0	4	80.0
Cardiovascular	6	5	83.3	5	83.3	5	83.3
Congenital	34	32	94.1	32	94.1	34	100.0
Unknown	6	4	66.7	5	83.3	4	66.7
Total	395	301	76.2	311	78.7	325	82.3

positive reactors and the percentage of such reactors. It is apparent that, in primary and secondary syphilis, the TPCF test is somewhat more reactive than the TPI test. In central nervous system syphilis, including tabes dorsalis, the TPI test was more reactive. In congenital syphilis, a slight advantage went to the TPCF test. In latent and cardiovascular syphilis, the two treponemal tests appeared to be about equally sensitive. In the 395 patients tested, the TPI and TPCF tests agreed in 87.3 per cent. Most of the disagreement results from the somewhat greater sensitivity of the TPCF test in early syphilis.

The early appearance of TPCF antibody and reagin compared with the development of TPI antibody can be demonstrated more dramatically in the experimental animal where the inoculum is known and repeated observations are possible. Figure 1 shows the rates of appearance of these three antibodies following the intracutaneous inoculation of 100 T. pallidum (Nichols strain). The spontaneous fall of reagin titer in the untreated rabbit is usual, but the TPCF and TPI antibodies persist.

Figure 2 demonstrates an even more

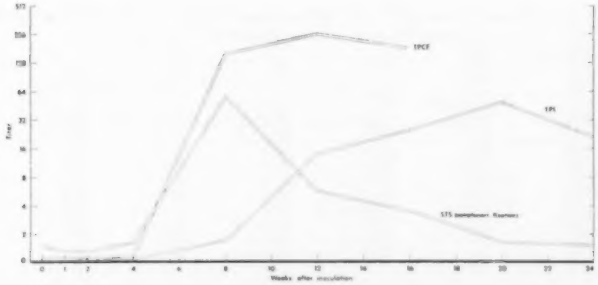


Figure 1—Appearance of Antibodies in Rabbits Inoculated with 10^2 Treponema pallidum

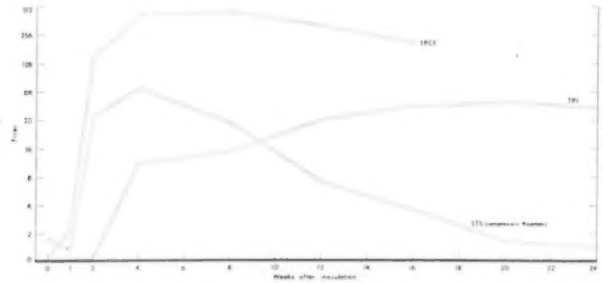


Figure 2—Appearance of Antibodies in Rabbits Inoculated with 10^8 Treponema pallidum

rapid development of antibodies following the inoculation of 100,000,000 T. pallidum. Other than altering the time of appearance of the antibodies, the massive inoculum does not change their course.

Shown in Table 2 are the test results in 266 patients in whom the differential diagnosis lay between biologic false-positive STS and latent syphilis. As is well known, it is in this area that the greatest diagnostic confusion lies. In most cases it is impossible for the clinician to determine with certainty the group to which the patient belongs. In these 266 patients, STS, TPI, and TPCF results agreed in only 33.5 per cent. However, the TPI and TPCF results were in agreement 94 per cent of the time. In the 78 patients who were submitted as "definite" biologic false-positive reactors, TPI and TPCF tests agreed in all but one, or 98.7 per cent of the time. Among the 188 patients considered probable biologic false-positive reactors on the basis of no clinical or historical evidence of syphilis, TPI and TPCF tests agreed 92 per cent of the time.

Perhaps these areas of agreement and disagreement among the various test procedures are better illustrated in Figures 3 and 4 in which treated and untreated patients are considered separately. Figure 3 illustrates the results obtained in 292 untreated patients. In

Table 2—Comparison of Test Agreement in 266 Patients Suspected of Having Biologic False-Positive Reactions

Category	Number of Cases	Per cent of Agreement			
		All Three	STS vs TPI	STS vs TPCF	TPI vs TPCF
No clinical evidence of syphilis	188	47.3	52.7	50.0	92.0
Biologic false-positive	78	0	1.3	0	98.7
Total	266	33.5	37.6	35.3	94.0

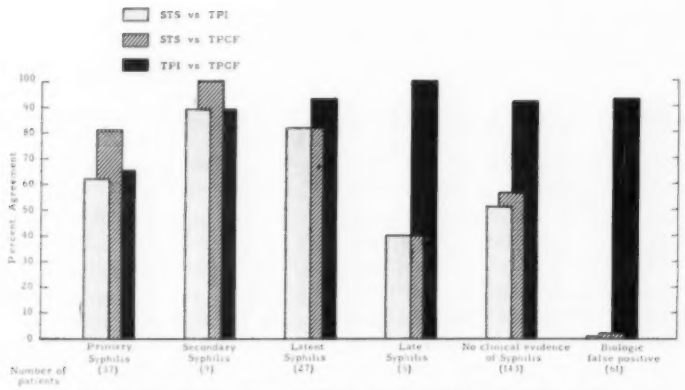


Figure 3—Comparison of Tests Among Untreated Persons

primary and secondary syphilis, the TPCF results tend to parallel the results of the STS. Neither the TPCF nor TPI tests measure reagin. Therefore, this early correlation between TPCF and STS results is not due to a reagin cross-reactivity. In the later phases of the disease the correlation between TPI and TPCF test results is much higher than the correlation between either treponemal test and the STS. The correlation between TPCF and TPI in the group thought to be nonsyphilitic has already been noted.

In Figure 4 are illustrated the results obtained in the 379 treated patients. Here it will be noted that, in treated early syphilis, the correlation between TPCF and TPI is somewhat greater than the correlation between the treponemal tests and STS. This differs from what was observed in the untreated individuals and probably reflects the tendency for treponemal antibodies to disappear more slowly than reagin in these treated patients. The agreement between TPI and TPCF in patients treated for late syphilis was somewhat

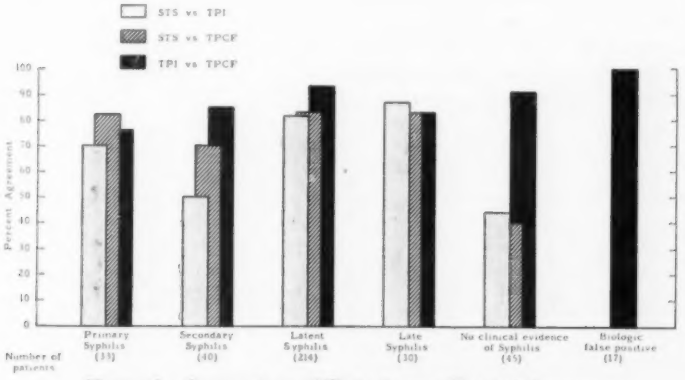


Figure 4—Comparison of Tests Among Treated Persons

less satisfactory than that observed in untreated late syphilis. The reason for this is not yet apparent.

Comment

The medical and lay readers have had ample opportunity in recent years to learn some of the inadequacies in serologic tests employing lipid antigens. The TPI test has proved an important tool in resolving many of the diagnostic dilemmas in which the clinician may find himself. Because technical limitations have precluded the widespread use of the TPI test, a number of laboratories have been seeking test procedures that would compare in specificity with the TPI test but which could be more easily applied. Often it is not recognized that these newer test procedures, that is, immune-adherence, agglutination, and complement-fixation, clearly demonstrate that syphilis evokes a variety of antibodies. The full significance of these various antibodies is not yet understood. Equally important is the fact that no single test technic, including the TPI, will measure all of these antibodies. Thus, the fond dream of many clinicians that some one test represents the single definitive procedure seems doomed to failure. It is more likely that one or more of the treponemal tests can be expected to reduce the margin of diagnostic error but never to eliminate it.

As antigen for TPCF testing becomes more generally available, the evaluation of this test procedure will advance at a more rapid rate. It is to be hoped that during the next year or so a comprehensive evaluation of all treponemal test procedures will be made which will permit a carefully controlled analysis of the relative reliability and usefulness of these diagnostic procedures. In the meantime, two commercial manufacturers are beginning the production of TPCF antigen. If the present trends continue, such production will make it possible for the well run serologic laboratory to perform these tests. The results should be useful to state laboratories and clinicians in helping to resolve some of the perplexing diagnostic problems that arise in the serodiagnosis of syphilis. We know of no laboratory test that is infallible, but we believe that the TPCF test results will be as helpful as those offered by any other single test procedure.

REFERENCES

1. Portnoy, Joseph. Fractionation Studies of Virulent Treponema pallidum: I. A Complement Fixation Test Using a Chemical Fraction. Preliminary Report. Symposium on Recent Advances in the Study of Venereal Diseases, Washington, D. C., Apr. 28-29, 1955.
2. Serologic Tests for Syphilis. 1955 Manual. PHS Publ. No. 411. Washington, D. C.: Public Health Service, Dept. of Health, Education, and Welfare.
3. Portnoy, Joseph, and Magnuson, Harold J. Immunologic Studies with Fractions of Treponema pallidum. I. Preparation of an Antigen by Desoxycholate Extraction and Its Use in Complement Fixation. J. Immunol. (In press).
4. Portnoy, Joseph, and Magnuson, Harold J. The Preparation of an Antigen from Virulent T. pallidum for Use in Complement Fixation. Am. J. Clin. Path. (In press).
5. Portnoy, J.; Harris, Ad; and Olansky, S. Studies of the Treponema pallidum Immobilization (TPI) Test. I. The Effect of Increased Sodium Thioglycollate and Complement. Am. J. Syph., Gonor. & Ven. Dis. 37: 101-105 (Mar.), 1953.

Handicapped Children in Georgia: A Study of Prevalence, Disability, Needs, and Resources

SAMUEL M. WISHIK, M.D., M.P.H., F.A.P.H.A.

Estimates of the prevalence of twelve handicapping conditions and their resulting degrees of disability lead to some useful suggestions about types and amounts of services needed and desirable patterns of organization for communities to provide them.

The Cerebral Palsy Society of Georgia decided that a survey was needed to determine the magnitude of the cerebral palsy problem in the state. The Crippled Children's Society of the State of Georgia agreed to cooperate in the study. From the outset two principles were followed. First, it was decided that the study should be done by professional workers and citizens in the state, so that the very process of doing the study would be more likely to have a continuing influence. Second, it was agreed that as many different childhood handicapping conditions as feasible should be included in the study so that there would result an over-all and functional community approach to the problem rather than a focus on one or another specific diagnosis arbitrarily picked out of community context. A complete report of the entire study will be published shortly, so within the scope of this article only portions of certain aspects can be included.

The broad objectives of the study were twofold: to try to measure the magnitude of the needs of handicapped children and to assess the adequacy of existing resources to meet those needs. The first step in assessing the magnitude of the problem is to attempt to determine the prevalence of handicapping conditions among the childhood population. A mere count of the various diagnoses by noses or heads, however, would obviously be rather meaningless. The label of cerebral palsy, for example, could apply to a child who is mildly involved, as well as to one so severely incapacitated that institutional care is the only possible solution. A second necessary step after a mere tally, therefore, must be to classify the children in terms of their functional disabilities. Regardless of medical diagnosis, what types of incapacitation and limitation exist in each child's life? The third step is the estimation of the types and amounts of services needed to help the children overcome their disabilities in so far as possible.

Recognizing that such an intensive approach is the only one that can have meaning, an attempt at direct assessment of large numbers of children would be

Dr. Wishik is professor of maternal and child health, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pa.

This paper was presented before a Joint Session of the American School Health Association, the Conference for Health Council Work, and the School Health, Dental Health, Maternal and Child Health, and Public Health Nursing Sections of the American Public Health Association at the Eighty-Third Annual Meeting, in Kansas City, Mo., November 16, 1955.

Table 1—Population and Sample Data

Item	Census Estimates Clarke-Oconee Counties	Sample Families	Per cent of Total
No. of persons	54,291	4,840	8.9
No. of households	11,218	1,001	8.9
Per cent of nonwhite total population	27	31.3	
No. of persons under 21 years	16,082	1,373	8.5
0–4	4,094	375	9.1
5–9	3,738	359	9.6
10–14	3,069	327	10.6
15–20	5,181	308	5.9

an overwhelming and prohibitively expensive task. In the Georgia study a 10 per cent sampling was attempted of the childhood population of two counties. The contiguous counties of Clarke and Oconee were selected because they are reasonably representative of the state in urban-rural distribution and in racial pattern.* It is recognized that no community can ever be identical with any other or broadly representative of the nation. So the findings of this study can be applied elsewhere only by adaptation. In such adaptation, approximations might be adjusted more profitably in terms of age distribution of the population than any other single factor of which we have knowledge. Population data for Clarke and Oconee counties are here included for this reason (Table 1).

Just a word here about the other main objective of the study, which was to assess the adequacy of existing resources. This was done by setting up a "blueprint" of an ideal, comprehensive community program for each one of the 12 recorded abnormalities. Committees of persons who had professional experience with each one of the diagnostic conditions helped draw up the blueprints. After they were completed a single composite blueprint was designed by combination of all. This was done so that the analysis of communities would be in functional terms of services to children rather than being compartmentalized by diagnostic categories. For example, speech therapy was regarded as a single community resource rather than necessarily separated for diagnostic groups. At the same time, the actual availability of speech therapy to children with cerebral palsy, cleft palate, or functional speech disturbances was also considered.

In 14 counties in the state committees of citizens and professional persons compared the availability of resources in their community with the ideal composite blueprint. On the basis of the reports of these self-evaluation committees an assessment was made of the adequacy of resources in terms of categories of service. No attempt was made to do a critique of the quality of the services, but an estimate was made of adequacy in terms of quantity and distribution. The community evaluation portion of the study will be covered more fully in the Georgia report; this paper is limited to studies on the handicapped children and their needs, rather than the existing resources in Georgia.

For the quantification study in Clarke and Oconee Counties a process of community organization led up to a three-week period during which all persons

* They were also chosen because of the location there of the University of Georgia. Members of the faculty of the university carried heavy responsibilities in the planning and operation of the project.

Table 2—Sources of Voluntary Reports, 1,287 Different Reports (1,252 Children)

Schools	849
Physicians and nurses	176
Family	158
Other	104

were asked to report to the local health department all children whom they suspected of being handicapped. Definitions of the handicapping conditions were drawn up as sets of questions in lay terms and were given broad publicity. Copies of the questions were distributed in churches, were placed on counters of stores, were printed in the newspapers, and were otherwise readily available far and wide. Simple cards for making the reports were also widely distributed.*

Parents were urged to report any of their children who seemed to fit the description (Table 2). Physicians and nurses were asked to report any children they knew about. The schools reported children known to teachers or to the school health service and constituted the largest single reporting source. Because of the reporting campaign, the public schools instituted mass vision and hearing tests and reported large numbers of children who failed those tests. We did not wish to ask neighbors or friends to report children outside their own families, but were overruled by the ardent local women's groups who felt, because of the possibility that parents might be neglectful, that all persons should be asked to report any children they might have seen in their neighborhood. We succumbed to this pressure and found that our fears of engendering hostility did not bear fruit. The reporting from this group, however, did not contribute appreciably to the end result.

At the end of the three-week period of widespread voluntary reporting an independent sample canvass of the community was made by selecting every tenth household by sampling technics. An example of the community spirit and cooperation that existed was the action of the mayor of one of the small communities who personally drew a detailed map of his town and put on it every residential structure in the town. Such an up-to-date map would not otherwise have been available. Fifty-three women from church groups were selected and briefed as volunteer interviewers. Interviewing continued over a period of two weeks.

The questions asked by the interviewers were identical with those that were used for the voluntary reporting, with the exception of an additional group of questions concerning one of the 12 diagnoses not included in the voluntary reporting—the diagnosis of personality disturbance.† When the list

* Example of case-finding questions used for orthopedics and cerebral palsy:

Does he have poor use of legs?
Does he have poor use of arms?
Does he have poor balance or coordination?
Does he have unusual jerking of arms, legs, face, or body?
Does he have deformed arms, legs, or trunk of body?

† Example of case-finding questions used for certain types of personality disturbance (asked only for children over seven years of age):

Does he show very peculiar behavior, such as:

Twitching or other strange mannerisms which he does not seem able to control?
Often hurting other children without reason?
Destroying things so much that he has been put out of play or school group?
Extreme fear of anything new and always staying close to parents?
Complete lack of interest in anything, either people or surroundings?

Does he for long periods of time go back to a more childish manner of acting or speaking?

Does he repeatedly:

Run away from home?
Play hooky from school?
Have trouble with courts, school, or other authorities?

of diagnoses to be included in the study was first being considered by the planning committee, I resisted including personality disturbance because I was concerned about the difficulty of its definition and the possibility that it might overwhelm the rest of the study. Again, I was overruled. Under the leadership of the State Health Department the group felt that this was too important a diagnostic category to be omitted. It was agreed, however, that the focus would be upon obvious and gross aberrations in the behavior of children. It is extremely gratifying to have gone through this experience and to have learned how valuable a case-finding device such a technic can be. As will be shown later, 50 per cent of the reported personality disturbances were confirmed and in 83 per cent of the cases some handicapping condition was found to be present.

All the reports by both the voluntary and canvass technics were edited by a pediatrician and presumptive or working diagnoses were made on the basis of the reported symptoms. The children were then classified by presumptive diagnoses and a sample of each diagnosis was drawn for invitation to clinics. Data were kept separately for those reported by the voluntary method and those by the canvass method. Children who were reported by both methods were grouped in both groups for sampling purposes. Children who had more than one presumptive diagnosis were sampled for each presumptive diagnosis. Eighty-five per cent of the canvass report cases were invited to the clinics and 63.5 per cent were seen. Forty-one per cent of the voluntary report cases were invited and 33.1 per cent were seen at the clinics.

Ten different types of clinics were set up for the 12 diagnoses by combining speech and hearing into one clinic and combining orthopedics and cerebral palsy into another. Children reported to have mental retardation were seen either at clinics for mental retardation or together with those reported to have personality disturbance. Children with various neurological symptoms were seen together with children reported to have epilepsy.

Twenty-four all-day clinics were held over a one-month period under the supervision of the State Department of Public Health Crippled Children's Division. Five hundred and eight children were seen. Eight hundred and forty-eight handicaps were found in 378 different children. Each clinic team consisted of from four to 10 different professional disciplines, with as many of each as were deemed necessary to carry the clinic load.* It must be emphasized that all the professional services for the clinics were rendered without charge to families or payment to professional workers. Leading persons in each specialty in the state were invited and invariably responded to the invitation at a real personal sacrifice.

During the morning and part of the afternoon children and parents were seen in individual interviews by various professional persons on the clinic team. In the latter part of the afternoon the entire clinic team sat in conference and discussed each child.

The first responsibility of the clinic team was to confirm, deny, or correct the diagnosis. It is interesting to point out that even voluntary reporting, largely by nonmedical persons, can have real value for case finding. Table 3 shows the degree of accuracy of the voluntary reporting—that is, the num-

* Example of a clinic team for mental retardation and personality disturbance:

1 Pediatrician
2 Psychiatrists
2 Psychologists
3 Social workers
1 Neurologist
2 Public health nurses
1 Educator
3 Volunteers

Table 3—Degree of Accuracy Among Voluntary Reports

Presumptive Diagnosis	Diagnosis Confirmed Per cent
Epilepsy	89
Mental retardation	79
Cosmetic	79
Personality disturbance	77
Orthopedic	77
Cleft palate and lip	75
Heart	67
Orthodontic	66
Cerebral palsy	60
Speech	53
Hearing	45
Eye and vision	40

ber of times that the different presumptive diagnoses were confirmed at the clinic. Accuracy was quite high, with an over-all 63.4 per cent confirmation. Speech, hearing, and vision, which are at the bottom of the list, are the educationally related diagnoses that were referred largely by the schools. The screening tests that were done in the schools were not repeated before referral. A certain amount of overreferral is, of course, inevitable when one aspires to reasonably complete case finding, but hopefully not as much as existed in this instance. The appearance of personality disturbance on this list, even though the set of questions on this diagnosis were not included in the voluntary reporting publicity, indicates that the reported symptoms led the editing pediatrician to establish this as a presumptive diagnosis.

It is important to look beyond the question of nonconfirmation of the presumptive diagnosis and to note the frequency with which reporting of a case uncovered other handicaps in the same child. When these other handicaps are added to the confirmed presumptive diagnoses Table 4 shows the frequency with which voluntary reporting constituted effective though not necessarily accurate case finding for some handicap. Seventy-seven per cent of the cases seen had some handicap and even the lowest presumptive diagnosis on the list was productive of information in well over half of the cases. We are convinced that voluntary reporting, even lay reporting, is an important case-finding device that should be given serious consideration, especially if the referral is strengthened by some kind of screening procedure.

In contrast, the canvass reporting which utilized practically the same questions as the voluntary reporting had both a higher yield and a higher proportion of overreferrals. One would expect that the interviewers' verbal recital of the questions item by item would result in detecting more cases and in more overreporting. Table 5 shows the per cent of canvass-reported diagnoses that were confirmed, 51.4 per cent for the total group, and for most diagnoses a lower percentage than resulted from the voluntary reporting. Again, when we look at the case-finding effectiveness of the canvass reporting in terms of uncovering any of the 12 handicapping conditions, rather than merely limiting ourselves to the con-

Table 4—Case-Finding Effectiveness of Voluntary Reporting

Presumptive Diagnosis	Showed Any Handicap Per cent
Cleft palate and lip	100
Orthopedic	94
Cerebral palsy	93
Mental retardation	92
Cosmetic	91
Personality disturbance	91
Epilepsy	89
Speech	86
Heart	78
Orthodontic	73
Hearing	65
Eye and vision	60

Table 5—Degree of Accuracy Among Canvass Reports

Presumptive Diagnosis	Diagnosis Confirmed Per cent
Cleft palate and lip	100
Mental retardation	90
Orthodontic	90
Heart	53
Personality disturbance	50
Speech	46
Orthopedic and cerebral palsy	42
Eye and vision	38
Cosmetic	37
Epilepsy	33
Hearing	31

firmation of the presumptive diagnoses (Table 6), we see a much higher degree of effectiveness, an average of 64 per cent. Though the results are in most respects again lower than those of the voluntary reporting, the productiveness is still 50 per cent, or better, in each one of the diagnostic groups.

By matching the voluntary reports against the canvass households it was found that the latter method was known to have missed 7.6 per cent of the cases in the sample. How many more may have been missed cannot be stated since children in the sample without reported handicaps were not invited to the clinics. Review of names of children living in institutions and other lists of handicapped children failed to disclose additional cases. The sample did seem low in the 15- to 20-year-old group and in certain diagnoses reported among Negroes.

Table 6—Case-Finding Effectiveness of Canvass Reporting

Presumptive Diagnosis	Showed Any Handicap Per cent
Cleft palate and lip	100
Mental retardation	100
Orthodontic	100
Personality disturbance	83
Heart	80
Orthopedic and cerebral palsy	73
Speech	71
Epilepsy	67
Hearing	66
Eye and vision	52
Cosmetic	50

On the other side of the coin, the total number of handicapped children discovered by the voluntary reporting alone would have been just about half that estimated from the canvass. Among the handicapped children actually found in the sampled households, only one-fourth had been reported voluntarily. One can say then that the canvass technic is essential when, for one reason or another, approximately complete case finding is sought. In the development of most health service programs, however, reliance is placed upon having a working case load through which the community may learn the value of the service and by increased demand may indicate the need for expansion of the program. For this purpose, voluntary reporting campaigns may be sufficient.

Voluntary reporting did better for certain diagnoses than for others. It did best for cleft palate, cerebral palsy, mental retardation, and orthopedic handicaps, and did most poorly for orthodontic, hearing, heart, and cosmetic conditions. This confirms the existing impression that more community education is needed in respect to the handicapping significance of orthodontic and cosmetic conditions, and that medical and audiometric examinations, respectively, rather than subjective impressions are necessary for case finding of cardiac and hearing impairments.

Furthermore, canvass reporting was better at uncovering milder cases than was the voluntary method. The case-finding method chosen in any instance would therefore depend on the objectives of the

Table 7—Prevalence of Handicapped Children in Clarke-Oconee Counties

Diagnoses	Estimated No. per 1,000 Children Under 21
Cosmetic	43
Mental retardation	40
Personality disturbance	29
Speech	29
Eye and vision	24
Hearing	19
Orthopedic	17
Orthodontic	16
Heart	10
Cerebral palsy	5
Epilepsy	4
Cleft palate and lip	1
Any of above diagnoses	108

program. Is it aimed at the more advanced or the milder cases? Is the emphasis on preventative or palliative rehabilitation?

On the basis of the diagnoses made at the clinics statistical calculations were made on the prevalence of the 12 handicapping conditions. The technic of calculating prevalence in the face of multiple presumptive diagnoses in the same children, as well as varying completeness of attendance of the sampled cases invited to each clinic, is a subject for a separate presentation. We shall here merely give our calculated estimates of prevalence (Table 7). Ten per cent of all children under 21 years of age are estimated to have one or another of the 12 handicapping conditions. The mere presence of a condition was not sufficient to include a child. The clinic team had to decide whether the condition constituted a handicap to the child. Handicaps were classified as slight, moderate, and severe on the basis of agreed criteria.

It is of interest to note how often a handicapped child has more than one handicapping condition. A third of the handicapped children seen at the clinics had only one of the 12 handicaps.* Another third had two different handicapping conditions and the remainder had three or more. The average for all the handicapped children was 2.2 different diagnoses per child. As would be expected, children with cleft palate and cerebral palsy have the highest number of different handicaps with virtually none of them having merely one diagnosis. Heart disease had the fewest number of handicaps per child, but even here the average was about 1.5.

The presence of multiple diagnoses in children was reflected in the unpredictability of diagnoses that were uncovered in each of the specialty clinics. Only 43.6 per cent of the diagnoses were the same as that on which the clinic placed primary focus. Another 37.6 per cent were reasonably related diagnoses and the remainder, 18.8 per cent, were completely unrelated.

This has important implications for program planning and operation. With few exceptions it is difficult to conceive of a service for any one of the diagnoses operating efficiently as a completely independent entity. If the service is sharply limited in breadth of specialties represented, the coexistence of other handicaps would require referral elsewhere in the majority of cases. If, on the other hand, the service aims ambitiously at attaining a comprehensive approach to the total needs of children in the single diagnostic group, it would necessarily deprive other children of these very same services. The only logical pattern and one that fortunately has been followed in different parts of

* Frequency of coexistent diagnoses among handicapped children:

No. of diagnoses per child	Per cent of handicapped children
1	32
2	30
3	19
4	12
5	6

Average: 2.2 Diagnoses per child

the country is the multi-diagnostic rehabilitation service. The full report of the Georgia study will dwell in greater detail on this question and will describe regionalization technics for bringing the metropolitan rehabilitation center and small peripheral communities closer together for effective care of handicapped children.

The second responsibility of the clinic teams after making the diagnosis was to assess the functional disability of the handicapped children, regardless of diagnosis or combination of diagnoses in each child.* Distinction was made between personal adjustment of the handicapped child and maladjustment of the rest of the family in respect to the presence of the handicapped child in the family. By "society's nonacceptance" was meant the extent to which social rejection of the individual occurred because of community attitudes, as nearly as the professional personnel were aware of them, rather than because of incapacitating factors inherent in the child's condition. Factors that might cause nonacceptance by the community, such as ugly appearance or strange sounding speech, were listed for each diagnostic condition and were then considered individually for each child.

Table 8 shows the estimated prevalence of the disabilities among the child population of the two counties. It can be seen that the physical disabilities are all at the lower end of the list in frequency of occurrence as compared with nonphysical limitations.

Table 8—Prevalence of Functional Disabilities in Clarke-Oconee Counties

Disabilities	Estimated No. per 1,000 Children Under 21
Educational	62
Social nonacceptance	52
Cosmetic	49
Personal maladjustment	39
Mental retardation	36
Maladjustment of family	35
Speech	33
Vocational	24
Hearing	19
Dental	17
Vision	16
Walking	14
Upper extremities	7
Seizures	3
General activity	1

The conspicuous association of mental retardation with hearing, speech, cosmetic and orthopedic impairments and with epilepsy, personality disturbance, and cerebral palsy emphasizes the important role of psychology and psychometry in crippled children's programs. Personality disturbance was most frequently associated with cleft palate, speech impairment, and mental retardation. Speech disturbance occurred with cleft palate, hearing impairment, mental retardation, orthodontic defect, and personality disturbance.

Little correlation existed between the child's physical incapacitation, maladjustment, his family's reaction, society's rejection of him, and his vocational limitation. For example, the child with mild epilepsy had a much higher degree of social rejection than the child with mild hearing impairment. The child with mild degree of mental retardation was rather well accepted by his family but not so by society. All the physical

* Categories of functional disability:
Physical
  Walking
  Use of upper extremities
  Limitation of general activity
  Function of teeth
  Hearing
  Visual acuity
  Cosmetic
  Seizures
Speech
Mental retardation
Educational limitation or need for special adjustment
Vocational limitation or special need for preparation
Personal maladjustment
Maladjustment of rest of family
Society's nonacceptance

and nonphysical disabilities but one tended to have more children slightly handicapped than moderately, and more children moderately than severely. Vocational limitation, however, was most often severe despite milder degrees of other disability.

The third responsibility of the clinic team was to estimate what services were needed for the children. The estimate of type and amount of service needed by each child was made in reasonably immediate terms just as it is ordinarily done in the medical care of any patient. But it was done for each child at the staff conference, so that the final decision of the team was accepted rather than each member independently recommending his own respective type of treatment. The findings were then compiled for the entire group without regard to diagnosis. Table 9 shows the proportion of handicapped children who needed each one of the most commonly required services. All the children need a diagnostic appraisal and a plan of care. Almost three-fourths need psychological or social service for child or parent. About one-third need some type of special education. Although another third needed short-term medical or surgical hospital care, it must be clear that this high number constitutes to a certain extent a backlog of unmet needs built up in the years immediately prior to the time of the survey.

Table 9—Prevalence of Certain Service Needs Among Handicapped Children

Services Needed	Per cent of Handicapped Children
Rehabilitation appraisal and plan	100
Counseling, guidance, and parent education	70
Special education	34
Short-term hospital care	31
Vocational aid	18
Therapies (PT, OT, orthoptics)	15
Orthodontic	10
Institutional care	10

Need for each type of service was then calculated for the total child population in the community in terms of established units of service, such as number of hospital days, hours per week of physical therapy, number of children in special education, etc. These will be furnished in detail in the total report of the study.

It is worth while to give particular attention to the well known great need for and universal inadequacy of family counseling. As long as this challenge remains unmet, the usual imperfect physical end result of the medical management of handicapped children will continue to be accompanied by disproportionate and unnecessary educational, vocational, and social disability. It is logical that guidance and support to the patient and the family should be offered as integral parts of medical or other services. In respect to handicapped children, however, certain factors often make such integration difficult. The rehabilitation center necessarily tends to give diagnosis and consultation for more patients than it can carry on a direct treatment basis. Responsibility for day-by-day supervision and care is scattered both in persons and in miles. Serious consideration must be given to setting up counseling services in newer administrative patterns, such as local field extensions of a rehabilitation center, direct patient focus by health departments rather than predominant limitation to social work consultation, major units in voluntary child and family agencies rather than begrudging acceptance of the exceptional case, and even specialized programs attached to a coordinating or referral agency. Close working relationship between counseling and other service programs is essential. Current explorations in the use of group methods should be intensified.

The Problem of Mental Health Among the Aged

BERNARD KUTNER, Ph.D., and WILSON G. SMILLIE, M.D., F.A.P.H.A.

A strong—and convincing—link in the lengthening chain of evidence to show that public health has as direct an obligation to the old as it has to the young.

Until very recent times the concerns of medicine and the allied healing arts and sciences have concerned themselves with morbidity and pathology in respect to problems of the aged. Little consideration has been accorded the strengths and capacities of older persons, the emphasis being centered upon weaknesses and disabilities. In a sense, these emphases understandably reflect a medical and a public health crisis. This crisis, namely, the enormous and growing institutionalized aged population has captured the attention of public officials in most states and has become the subject of continuous study by the Council of State Governments, representing the interests of the 48 governors.

It is common knowledge that about half the resident population of the nation's mental institutions are persons past 65. It is equally well known that many of these older people may not require institutional care and, indeed, many require little medical care. The same may be said of thousands of older people who are living out their lives in hospitals, homes for the aged, nursing homes, and similar institutions. While it is perfectly clear that many of these older persons do, in all truth, require the institutional treatment they are receiving, it is also a pathetic fact that a large number of old people are being navigated toward institutional life when, with a more humane public attitude toward aging, Americans by the many thousand could be living useful and productive lives as members of the community.

From a public health point of view efforts to promote and maintain well-being among the aged are tragically meager when compared to similar efforts in behalf of children, adolescents, and younger adults. We medicate, palliate, and tolerate older people as a group somehow set apart from the ongoing life of the community. This separation has two major consequences. First, it singles out and stigmatizes the older person, implying as it does an inferior status and accelerating whatever objective changes in vitality, energy, and capacity may exist. Second, and stemming directly from such stigmatization, is the quickening pace of institutionalization, especially of the so-called "senile" person.

Psychotherapy, vocational retraining, and the general rehabilitation of the older person are present-day anachronisms. Human salvage and restoration operations are almost exclusively reserved for youth. This dismal situation can only lead to the still more dismal and unimaginative prospect of a larger and yet larger older age group population filling our institutions. From both a public health and a humanitarian perspective a halt or possibly a reversal of this process is demanded. The institution should not be permitted to be a wasteland of human wreckage. Those who are properly diagnosed and for whom institutional care is required should be its population. Terminal institutionalization must never be an easy solution, but employed only selec-

tively. It is our purpose here to demonstrate how some insight may be obtained into the means of forestalling social degeneration, the loss of self-esteem, and the sense of hopelessness that pervades the lives of so many older people.

From 1952 to 1954 a study was carried out in a local health district of New York City known as Kips Bay-Yorkville. The district housed at that time some quarter of a million persons, about one-seventh of whom were over 60 years of age. It was our purpose to assess the conditions of life and some of the problems of a sample of the aged portion of this population. Our long-range goal was to evaluate the relationships between needed and existing community services for older people.

Because of the high concentration of upper social and economic status persons residing in the study area, the sample chosen was deliberately weighted to underrepresent the more affluent group and to overrepresent those of lower socioeconomic status. It is believed that this weighting produces a proportion of socioeconomic groups more commonly found in American cities than is true of our study area—which includes New York's so-called "silk-stocking" district.

Five hundred persons past 60 were chosen for our sample by systematic random sampling stratified according to socioeconomic status. Three hundred fall into the lower economic group, 150 into the middle-class group, and a mere 50, or 10 per cent, are of higher status.

In the sample there were six women for every four men, averaging 70 years of age, and ranging from 60 to 90 years of age. All were living at, and were interviewed in their homes, which—except for a handful—were rented apartments or furnished rooms. Of each six respondents in the study one had never married, two were married and living with their spouses, a little less than three were widowed, and about one in six were either divorced or separated. There were three and one-half times as many married men as married women. At the same time there were three times as many widows as widowers. By religious preference, nearly half were Catholics, about two-fifths Protestants, and about a tenth Jewish.

Half the women and a fourth of the men were living alone. As to employment, a third of the group were gainfully employed, a fewer than 10 per cent called themselves "unemployed" and seeking work, while a third referred to themselves as "retired." One-fourth of the sample are women who have never been gainfully employed.

The median educational attainment of the group is grammar school graduate. Less than one in 10 had gone to college. Nationality-wise, the group is predominantly foreign-born. Native-born Americans constitute only 13 per cent of the full sample. People of German or Austrian birth lead a long list of nationalities represented in the group. These then are the characteristics of the sample older population investigated.

All the interviews carried out during the course of the study followed a prepared schedule of 106 basic questions with numerous additional subquestions dealing with such areas as health, social life, attitudes toward work, family, religion, and many other aspects of life. Fifty trained interviewers collected the data as the field staff of the project. All interviews were conducted in private. By eliminating from our sample all

Dr. Kutner is assistant professor of preventive and environmental medicine (social science), Albert Einstein College of Medicine, Yeshiva University, Bronx, N. Y., and Dr. Smillie is executive director, New York State Charities Aid Association, New York, N. Y.

This paper was presented before the Mental Health Group of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 14, 1955.

eligible persons who were institutionalized during the four months of interviewing, we perforce cannot report upon them. It should be mentioned that institutionalized persons comprise about 6 per cent of the aged population of the study area.

Within the limitations set by the particular sample selected for study, we may now proceed to examine some of the findings as they apply to the problem of mental health in old age.

At the outset it is important to point out that we are approaching our data from the standpoint of community health. We plan to indicate: (1) the signs of emotional or mental disturbance in the population studied; (2) the general adjustment of the various groups in the sample; and (3) some of the environmental stresses and their impact. First, let us examine some of the simpler facts revealed by the study. One person in each six, or about 17 per cent, of the sample reported that at some time in their lives they had experienced a period in which they were so worried, nervous, or emotionally upset that they could not carry on their usual activities. Of these 83 people, only 19 had experienced this episode within the previous five years. Thirty persons, or six per cent of the total sample, indicated that their disturbance had continued for more than two years. Eight per cent of the sample reported that they had had medical care for emotional disturbances during their lives.

As to the nature of the current disorders involved, a wide array of disturbances were reported, ranging from chronic digestive upsets to thoughts of persecution and suicide. Although there is considerable overlapping in the persons reporting symptoms of various kinds, it is interesting to note some of the more common conditions and the proportions of our full sample reporting them: nervousness (18 per cent); headache (8 per cent); insomnia (18 per cent); digestive upsets (5 per cent); constipation (13 per cent); obsessive thoughts of death (9 per cent); exhaustion upon arising (24 per cent); depression (13 per cent); suicidal thoughts (4 per cent); and persecutory feelings (3 per cent).

It would appear from these figures that at least among this sample of older, relatively ambulatory city dwellers, only a very small portion are living in a state of such serious emotional disturbance as to constitute major medical problems. This, however, should not blind us to the fact that a small portion are in serious circumstances and, for the most part, unless they become nuisances to their neighbors will continue to live with them, with only the barest possibility of receiving professional help. One of the most tragic facts revealed by our inventory of available services for older people in New York City is that conservative treatment facilities for the emotionally sick person past 60 years are almost unknown. This situation enters the interests of public health since a relatively small untreated population will tend gradually to tax the permanent psychiatric service agencies of a community as the condition continues or worsens and the numbers affected increase. This is precisely the situation we find today.

The vast majority of older people are neither severely intellectually impaired nor psychotic. Our evidence would indicate that in fact a large proportion are bearing up unusually well despite numerous environmental insults that might be expected to work havoc among them. But old people tend to be the hardy survivors of their generation. They survive with the generous assistance of modern medicine, providential intervention, and "Lady Luck." They do not fit the common stereotypes of the aged that tend only to reflect their declining vigor and stamina. As further analysis of our findings will show, it is

only the small minority that require mental health services. The significant point, however, is that those who do require them go wanting, even though the burdens upon the individual, as well as the community, become intolerable.

Many of the questions employed in our schedule were combined to form a "mental health index" on the assumption that mental health could be defined in terms of the number of symptomatic indicators of emotional upset. Sixteen such indicators were used to form the index. It should be stressed that a high score on the index does not necessarily indicate the presence of mental disease as a clinical entity, but merely provides some measure of the individual's emotional status.

Using the mental health index we find that of each 10 respondents, 3.3 report no symptoms of any kind, 3.8 have one or two symptoms, and 2.9 report from three to 13 symptoms. Our 500 respondents were arbitrarily divided into two classes. The first, Group A, are the mentally healthy who report fewer than three symptoms. The second, Group B, are the mentally unhealthy who report three or more symptoms. These classifications are assigned merely to expedite analysis and with no intention of being definitive. Our purpose is not diagnostic, but is to obtain crude though substantial estimates of emotional status. Our groups are, therefore, quite unrefined and there is no doubt that some of each category belong in the other. If our assumptions are correct, however, the value of our classification will be relatively unimpaired by the obvious shortcomings of our measure.

We find 354 respondents, or about 70 per cent of our sample, in Group A, the healthy group, and 30 per cent in Group B. Using independent measures of each, mental and physical health are found to be closely correlated. A person exhibiting emotional symptoms is four times as likely to be in poor health as is a person not showing such symptoms. It is our belief that the causal chain is an interdependent one. There are numerous individual instances in which depression, self-hatred, and even self-destructive symptoms appeared following a crisis, such as retirement or the death of a spouse. Group B individuals are further characterized by a markedly lower degree of self-esteem and a noticeably higher degree of expressed futility with life's problems. Such factors as enforced retirement, the decline of living standards, an imposed sense of uselessness, or death and moving away of relatives and friends are the types of environmental stresses with which persons in Group B find it difficult to cope.

One of the major components of mental health is "morale" which we define as a state of being characterized by optimistic planning, an ability to face adversity realistically, and a sense of satisfaction with oneself. Using criteria such as these, a "morale scale" was devised that affords us a measure of the individual's general adjustment.

An analysis of factors related to good adjustment reveals that the following are top correlates of high morale: (1) good health; (2) gainful employment; (3) high social position; and (4) a youth-oriented outlook on life. Demoralization is likely to be found among those in poor health; those in strained economic circumstances who have recently lost their employment or who regard themselves as unemployed; those of low social position who are relatively isolated from society (though not necessarily those who are living alone); and those who regard themselves as old and decrepit whatever their age may be.

All these factors are intimately related to each other and do not usually function independently. The only exception is the factor of health. A person in poor health can become demoralized, despite any other conditions of

life that may compensate in some way. Poor health is most frequently the reason that a person in our sample is now unemployed or retired. It is also often a cause for social isolation. Protracted illness tends to remove the individual from the life of the community and to a large extent contributes to the lonely existence being led by a sizable portion of our sample.

The unemployed group, while relatively small in number, are of special interest since their morale scores are consistently the lowest, their mental health index showing the greatest number of symptoms, and their health being about the poorest. Frustration and futility are the lot of most unemployed older persons. The chances of being hired to do a job once past 60 are extremely remote. The individual regards himself as a failure and does not face up to the situation that society has blocked him out from being a contributor in the way he knows best. A program for mental health among the aged could readily begin with a drive to emancipate the older worker from the dread of age-determined retirement or from arbitrary loss of employment opportunities because of age.

Demoralization and premature senile degeneration are public health problems that beg for the type of concentrated attack that has been so successful in the more traditional fields of public health endeavor. Mounting evidence, including the data of our study, suggests the following as a minimal program for improving the mental health picture among our aged:

A vigorous educational program aimed at maintaining the older person in good health. A fracture prevention program should be one of the elements in the campaign.

Encouraging medical and nursing schools to take a deeper interest in the health problems of older people and in chronic illness generally. The attitudes of many medical students toward the older patient with the uninteresting disease are shaped at least in part by their mentors.

Adopting a positive attitude toward the medical and vocational rehabilitation of the older person. Rehabilitation has too often been made a luxury item for the older person though it is standard procedure for the young.

A general attack upon the concept of enforced retirement aimed at abolition of age criteria and the development of fitness criteria for retirement.

The development of various forms of sheltered employment settings where the individual may be gainfully employed though not necessarily on an eight-hour a day basis.

The immediate organization of limited treatment services for dealing with the emotional problems of older people. In this connection the experience of the Adult Counseling Services of New York will be of interest. This is a multi-service interdisciplinary sociomedical service developed out of the research program reported here.

A program to more effectively screen cases heading toward institutional care, as well as a thorough reexamination of the lot of the older so-called custodial cases occupying hospital beds. (In a recent study Howard Rusk, M.D., found that numerous nonmedical cases have been held in chronic disease beds in New York hospitals because the occupant simply had nowhere to go.)

The encouragement of professional schools to give special emphasis to geriatric or gerontologic problems in social work, clinical psychology, physiotherapy and occupational therapy, and associated professions.

The establishment of permanent municipal and state-wide commissions or committees to assure concentrated and imaginative efforts to keep the problems of aging in the forefront of public awareness and high in the respect of the professional community.

A drive to root out age prejudices among our population. Perhaps this should be our foremost program for it is national apathy and unwarranted stereotyping and blind prejudices that often govern inaction when older people are concerned.

Mental health among America's aged is a major public health problem and should be so recognized. If public health forces can be sufficiently aroused to undertake programs aimed at improving the health of this group, the overpowering cost in human and economic waste that is the present price we pay for our present inadequate program will be materially reduced.

Service Statistics—An Essential Dimension in Program Design

EVELYN FLOOK

The very heart of useful service statistics is the establishment of meaningful relationships. This the author points out in the third paper of four on "Recording and Evaluating Public Health Programs."

In an introductory article Murray R. Nathan * gave us an excellent general pattern for the designing of public health programs and Daniel Bergsma, M.D.,† discussed a tested method of recording program information. Within this setting let us now consider some of the kinds of data that are worth recording and how they might be used in tailoring the over-all program design to individual specifications.

In fashioning health programs, as in constructing anything else from working drawings, functional details will vary considerably within the outside limits of the accepted blueprint. Additions, deletions, and substitutions are being made continually in the development of custom-made health programs—those that are truly responsive to community need.

Sound service statistics are a valuable, in fact, an essential, dimension in maintaining or redesigning the original plan as the program progresses. They can provide perspective for judging success or failure in achieving stated objectives or in making progress toward them. They can serve as the gauge for distributing, or redistributing, resources—and for determining whether, and when, program operations should be realigned.

Because confusion regarding terminology is apt to characterize—and to hinder—any discussion of the problems we are dealing with, let me define service statistics as I shall use the term in this article:

"Service statistics in public health are numerical measurements of services rendered to individuals and to the community through public health programs."

That definition was chosen by the Working Group on Service Statistics of the Public Health Conference on Records and Statistics—a group of public health statisticians of local, state, and federal health agencies having a mutual interest in and concern with this subject.[1-3] The philosophy of this organization, which is dedicated to the development and improvement of all kinds of public health records and statistics, underlies much of what I shall present.

The simple, perhaps even obvious, definition quoted has real value, since it establishes as an essential of service statistics the linking of program or operational data to some sort of population base. If you prefer to use the

* Some Steps in the Process of Program Planning. A.J.P.H. 46, 1:68, 1956.

† A Method of Recording Public Health Programs. A.J.P.H. 46, 1:72, 1956.

Miss Flook is chief, Public Health Practice Studies Section, Division of General Health Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.

This paper was presented before a Joint Session of the Association of Business Management in Public Health and the Health Officers and Statistics Sections of the American Public Health Asociation at the Eighty-Third Annual Meeting in Kansas City, Mo., November 16, 1955.

term "program statistics" or "operational data," instead of "service statistics," I think we should probably mean essentially the same thing, so long as we were all considering the meaningful numerical facts needed for the planning, operation, and evaluation of public health programs. However, the very words "service statistics" suggest immediately an important fundamental concept—the concept of accounting for, or measuring, service to people—not merely a count of specific acts of the health department staff.

There is a real distinction between the traditional activity counts—enumerations of nursing and clinic visits by such broad categories as tuberculosis, general communicable disease, child health supervision, prenatal care, etc., or of sanitary inspections of different types of establishments, and the kind of statistics which focuses attention on numbers and kinds of persons served, types, and amount of service rendered, and what happened as a result of the service. On the one hand, quantitative evidence is being accumulated to describe how each public health worker spends his time, in other words how much effort is being expended for each separate program. On the other, information is being collected to determine, or at least to help determine, whether the effort was worth while.

There are several prerequisites to the development of meaningful service statistics. First, the problem or needs must be clearly defined. Parenthetically, how those needs are determined is also a matter of vital importance, but does not fall within the limits of this discussion. Next, the objectives and scope of program must be carefully outlined. I do not mean broad general statements of intent and areas of activity, but specific goals to be achieved within designated time limits and sharp delineation of methods by which these goals will be reached.

Third, the purposes to be served by the particular information agreed upon should be specified: Is it needed to help define the health problems of the community? Will it disclose weaknesses in program which will aid in providing the best possible service to the individual? Will it help measure the extent of the program and progress being made toward solution of the problems? Will it permit comparison of program objectives and program accomplishments? Can it be used for future program planning? Will it answer questions concerning the health department's accomplishments asked by the general public, by local appropriating bodies, and other agencies contributing financial support?

These are some of the questions to be asked and answered before determining the type of service statistics needed for guiding any health program through its three main phases: planning, operation, and evaluation. If each proposed body of information is subjected to such scrutiny, the accumulation of masses of fuzzy, valueless data can be avoided and the development of useful measurements of service more nearly assured.

If the program goals and the steps toward achieving them are planned in measurable terms, and if each item of information to be obtained is significant for the specific purpose it is designed to serve, a firm foundation has been laid for the collection of service statistics which will measure achievement or progress.

For example, the goal of a restaurant sanitation program may be to get every eating establishment in a particular community to meet accepted food-handling practices. Since a given number of substandard places are involved, the goal can be expressed in measurable terms as a specific number of establishments to be brought into line or required to discontinue service. From statistics showing the number of places which

have completely or partially made the necessary improvements it is possible to determine the extent to which the goal has been attained.

Currently, every health officer in the country has as his goal the immunization of all children within a selected age group against poliomyelitis. He knows the total number of children of this particular age within his jurisdiction and the number who received vaccine furnished by the National Foundation for Infantile Paralysis. He learns the number who have already been vaccinated in other public clinics and, either by total count or by sampling, in the offices of private physicians. Then he determines the percentage of the total group who have received injections and the estimated number still to be reached. With such information he can determine the progress he has made toward his stated goal.

He can also evaluate the promptness with which the vaccine allotted to private physicians is used as compared with the amount allotted to public agencies. If the relative difference is too great, he may reapportion future supplies, thus revising his original plan. Later, when review of progress, as determined by the counts of persons vaccinated related to the total priority group, indicates the advisability of broadening the eligible group the goal is changed and the program replanned still further.

You will note that the statistics used for each particular purpose are derived from some sort of comparison or relationship. It might well be said that the heart of useful service statistics is the establishment of meaningful relationships. If one single factor could be chosen as being more important than any other in the development of sound service statistics that factor, I think, would be interrelatedness.

In order to have maximum meaning the units of measurement which apply to service rendered must be related to such base line data as population by age groups; morbidity, natality, and mortality; the health needs of special groups, not as seen by the public health worker alone, but also as seen by the people; health facilities, services, and personnel available under public, voluntary, and private auspices; housing, sanitation, nutritional, and general economic status of the community; and information reflecting expenditures. In other words, true measurements ot accomplishment cannot be arrived at by counting units of service alone. Quantitative relationships must be established between the services rendered and the health problems to be solved.

It is at this point that the statistics produced in some health departments are found wanting or break down completely. Units of service are enumerated, but they are not related to base line data available. Indeed, far too often the base line is not established until the program is well under way and by that time the significant basis of comparison is lost.

The recent National Conference on Evaluation in Public Health stressed the importance of carefully establishing base lines for purposes of program evaluation. Particularly pertinent to the present discussion was a comment by Dr. Otis L. Anderson [4]: "Fundamental to any evaluation technic is the establishment of a base line from which to measure progress. Base line data must be identified and plans made for systematic recording of changes which occur following initiation of the program."

Obviously, sound service statistics are an essential dimension of the evaluation portion of program design. A few illustrations of their application to specific areas may be helpful:

Already mentioned is the poliomyelitis immunization program. A mere enumeration of children receiving in-

jections in health department clinics would have little meaning unless this count were related to the total number of children in a particular age group, the number vaccinated under other auspices, and the number still to receive vaccination. For other types of immunization, likewise, it is the level that has been reached in a community that is important. Yet for years typical immunization statistics have been limited to a count, by type, of immunizations given at designated places within various periods of time, without being related to the number of children of various ages and special groups who should be immunized.

Since the advent of isoniazid and other drugs, treatment has been available for tuberculosis patients at home, as well as for those hospitalized. Adequate supervision of the nonhospitalized patients is a challenge to the health department. To assist in evaluating programs for the treatment of tuberculosis patients at home a progression of relevant information similar to the following is needed:

The number of persons known to have tuberculosis, by clinical status

The number of patients with active and inactive disease under the medical supervision of clinics, private physicians, outpatient departments, etc.

The number of persons, by clinical status, recommended for drugs and/or limitation of physical activity, and the number of these patients known to be following recommendations prescribed

The number of patients with active and inactive disease receiving public health nursing supervision for bedside care and/or administration of drugs

The number of patients who have had a change in their diagnosis, indicating extension of the disease, or indicating improvement and/or recovery.

Likewise, a chain of useful statistics regarding a single segment of a school health program might shape up somewhat as follows: the school population covered; numbers of children examined; numbers of children not examined who should have been; numbers of children with health needs; numbers of defects or abnormalities for which further attention is indicated; and correlation of the abnormalities found with those corrected.

In discussing this one portion of school health services, a preliminary report by the Committee on School Health Service Statistics of the School Health Section of the American Public Health Association [5] states that it is usual to find statistics showing how many children were examined during the school year and of these how many were found to have abnormalities. It is unusual, however, to be able to tell from the report (1) which of the abnormalities tabulated could not be or did not need to be corrected, and (2) just what happened to the conditions found and judged as needing correction.

How many were corrected? How many were subsequently considered as not needing correction? How many remain uncorrected—and why? Even when an attempt is made to tabulate corrections, such tabulations too often include corrections of abnormalities discovered in previous school years. Thus it is impossible to establish valid correlations and to truly evaluate what was accomplished. Another notable omission in the school health statistics of many health departments is the failure to relate information regarding services to the total base population.

On a somewhat different plane we might look at our programs for training public health personnel. Although this program does not involve direct services to people, indirectly it has a tremendous impact upon the quality of service they receive. The problem is expressed by the number of professional personnel of the several categories who should have had graduate or specialized training in public health, but who have not had such training. The goal is to im-

prove the level of training of those presently employed and to recruit trained people to fill vacancies as they occur. Progress toward attaining that goal is revealed by the number of persons trained each year, coupled with statistics on personnel turnover.

Sometimes, unfortunately, regression rather than progress is disclosed. However, it is necessary to know when we are going backward as well as when we are moving forward, in order to press more forcefully for corrective action or to reconsider the original goal and the plan for reaching it.

It is also necessary to know whether what happened to a group participating in a given program, and thus under scrutiny, is any different from what happened to the rest of the population. Conceivably, the changes noted in the observed group may also have occurred among persons not included. Both the population affected and that unaffected by a particular program should be carefully observed and pertinent facts recorded. Well controlled epidemiologic studies, with appropriate appraisal of differences in effect, are classic examples of this use of service statistics.

Most health officers find it desirable and important to know the extent to which public health effort is reaching all the people who need service. The number and characteristics of persons served by the health department is only half the answer. Where does the remainder of the community receive comparable services, if any? Sound service statistics are essential to appraisals of differences between the so-called "numerator" and "denominator" populations.

Such related statistics do not just happen. Organized methods are needed to bring together the several groups of data so that significant and valid quantitative relationships can be established. Here, a word of caution might be inserted regarding availability, scope, and volume of information required for the service statistics under consideration. Strict control must be exercised to keep statistical requirements commensurate with need and use. This is imperative because of the cost, time, and effort involved in their production. Obviously, collection of statistics—no matter how good—as an end in itself should be discouraged.

In so far as possible maintenance of records and compilation and interpretation of statistics should be an integral part of program management. To this end, more extensive use might profitably be made of short-term studies, often based on a sample of the total and aimed at answering specific questions. Substitution of this technic for routine collection and reporting of complex mass data is not only more economical in many instances, but frequently provides information which can more directly pinpoint the particular problem at issue.

Case records of individuals served by the health department constitute one of the best sources of service data. Periodic case record review and analysis can provide valuable leads for evaluating the adequacy of health department service. An accumulation of deficiencies indicates where emphasis should go. From such information it is possible to determine whether present resources can be redistributed or whether additional personnel or facilities are required.

In addition to its value to professional public health workers a summary of this type of data provides budget officers and appropriating bodies with a better understanding of the health department program and its needs than does the traditional unrelated count of visits, inspections, and admissions to broad categories of service.

Conclusion

Not only health officers, statisticians, and business managers in public health, but other public health workers as well,

are concerned with numerical measurement of public health services. Such numerical information is needed for program planning, program operation, and program evaluation.

To be most useful, service statistics must meet several tests. They should: (1) be designed to serve a specific purpose, such as: help define a public health problem, help measure extent of service, help measure progress in relation to the problem, or help furnish a basis for future program planning; (2) be developed in accordance with clearly defined program objectives; (3) reflect service to people, not merely enumerate volume of activity of the health department staff; (4) be related to base line data, so that quantitative relationships can be established between the health problems to be solved, the services rendered, and the results of public health effort; and (5) be sufficiently limited in scope and volume to justify the time, effort, and expense involved in production. Frequently, preparation of recurrent statistical reports can be simplified by making special limited studies in place of routine collection of complex mass data.

The several groups who have been exploring this subject at length would be the last to claim that consistent following of the approaches they have suggested is a panacea for all of the statistical problems one meets in day-to-day health department operation. Much work needs to be done in refining the significance of various units of measurement now being used, in identifying new ones, and in developing criteria standards, or yardsticks against which changes will be measured.

Even then, there would still be many unanswered questions. One of the things we most need to know about our public health efforts is why people fail to take advantage of health services offered them or to put into practice tested measures of health protection. Guidance from the social scientists is needed in developing appropriate methodology for the measurement of behavioral problems and progress.

But when the sort of service—or "operational" or "program"—statistics that have been the core of this discussion become an integral part, or essential dimension, of every basic program design, rather than a "lean-to" of afterthought, we shall be in a much better position than we are today to tell where we are going in public health.

REFERENCES

1. Basic Principles Governing Service Statistics in Public Health. Developed by the Working Group on Service Statistics of the Public Health Conference on Records and Statistics. Approved by the conference April, 1951. Revised and revision approved November, 1954, as Document No. 353.
2. General Operating Procedures Which Should Be Followed in the Collection, Analysis, and Interpretation of Service Statistics—Part One, Health Supervision of Infants and Preschool Children. Developed by the Working Group on Service Statistics of the Public Health Conference on Records and Statistics. Approved by the conference March, 1952, as Document No. 229.
3. General Operating Procedures Which Should Be Followed in the Collection, Analysis, and Interpretation of Service Statistics—Part Two, Health Services for Children of School Age. Developed by the Working Group on Service Statistics of the Public Health Conference on Records and Statistics. Approved by the conference March, 1954, as Document No. 312.
4. Anderson, Otis L. Planning in Relation to Evaluation. In process of publication as part of the Proceedings of the First National Conference on Evaluation in Public Health. School of Public Health, University of Michigan, September 12, 1955.
5. Report of the Committee on School Health Service Statistics. As presented to the School Health Section at the Eighty-Second Annual Meeting of the American Public Health Association, Buffalo, N. Y., October, 1954.

Be Sure the Juice Is Worth the Squeeze

CLEMENS W. GAINES

Some of the often hidden costs of planning—and working out—service programs are suggested in this plea for continuing alertness regarding the true values of the records sought.

Credit for the slogan used as the title of this paper goes to the late Hugh Stanley Torbet, architect and engineer in the Maryland Department of Health. I hope this paper does justice to the concept of his expression for in these words he left us an important mandate. To elaborate on the title, it takes a measure of energy to squeeze even a drop. Be sure that the energy expended by all concerned is justified on the basis of the useful characteristics of the drop.

I have limited my considerations to the recording and evaluation of routine public health programs, though, admittedly in research projects different weights are attached to the factors that I shall discuss. In day-to-day activities I am concerned with budgets, among other things, so I am reminded to point out that in Maryland personnel activities cost about one cent per minute per $1,000 of annual salary. If it takes five minutes a day for a public health nurse to complete her activity report, then in our state, those reports would build up an impressive total of about $9,000 per year. Systems for recording data and evaluating programs cost, not only the time of clerks and statisticians, but also the energy of nurses, sanitarians, or health officers who make the tick marks which constitute the raw data. We must keep in mind not only cost, but the utilization of such specially trained personnel. And this leads to the point that in organizing systems for recording and evaluating programs one must be sure that the raw data are reliable and valid. In organizing the system one must also be sure that the evaluation is made in meaningful terminology. To do this one must determine the purpose of the evaluation.

In the public health field our programs must be interpreted in meaningful form to the general public, to legislative bodies, to administrative personnel, such as budget directors, as well as to program directors and their professional colleagues. It is not a simple matter to select terminology which will be meaningful to all these groups; yet to be practical the requirement is that the programs be interpreted to them all.

I have used the term "systems for recording and evaluating programs" and have spoken of organizing such systems. In the military field the term "weapons' system" has been introduced in recent years. This includes everything from locating the target, to aiming the firing device, actuating the firing mechanism, and recording the results of the effort. We must look on our recording and evaluating programs in a similar fashion—as a system. It includes everything from the production and distribution of the forms to the creation

Mr. Gaines is chief, Bureau of Management, State Department of Health, Baltimore, Md.

This paper was presented before a Joint Session of the Association of Business Management in Public Health and the Health Officers and Statistics Sections of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 16, 1955.

of the tick marks that are the basic data, to the assembly of the data, the evaluation of the data and, finally, interpretation to an audience. I plead that as much importance be attached to the design of that system as we know is attached to the design of a modern "weapons' system." To do this one must first analyze the problem realistically. Each person concerned with designing the system must perform this analysis from his particular standpoint. Then it must be brought together and existing records must be reviewed to see what is available from them. When the system is finally adopted, just as in complex systems of medical treatment, the pattern must be efficacious and practical. The tools, the data in this case, must be those that are presently available or can be made available within practical limits.

Weighing the value of operations is not a simple matter. It is said that in one state it costs about $30,000 per new case of syphilis detected by the premarital medical check-up routine. Somebody must face up to the difficult question of whether the cost of this effort is worth the finding of one previously unknown case in each 10,000 persons tested.

In operating a program financed from public funds it is, of course, essential that there be accurate evaluation, but one can never lose sight of the fact that, at best, processes for this evaluation are expensive. It is a very simple matter for the program director, too often with the statistician biting his tongue, to direct that a particular piece of information be recorded; after all, it is just the clerk's time. Once I heard a program director say that he was fed up with this "horrible infatuation with dollars," but one may venture to say that if he conducts his private affairs with that attitude, his wife must be vitally concerned with dollars and so as a team they have not avoided it. So it is with the health team. The program director may want a specific item recorded, but here he must consider "the wife" and be sure it is worth her effort; the "wife" in this case are the statistician and the clerk, together with a few nurses, sanitarians, local health officers, or supporting program directors. This team will serve the program director well, for that is their purpose, but all too often they harbor information which could improve the reliability, validity, economy, or facility of interpretation; however, this is lost because at the office they are not permitted to enter into the planning as a full partner. We can leave with the observation that the program director does not get away with that at home!

Stanley Torbet gave us our challenge "Be sure the juice is worth the squeeze." We should be wise enough to accept that challenge and use the thought behind his words as one of our primary guides when we record and evaluate our programs.

American Journal of

PUBLIC HEALTH

and the Nation's Health

Official Monthly Publication of the American Public Health Association, Inc.

Volume 46 | February, 1956 | Number 2

Public Health and the Cardiovascular Diseases

There was a time when "public health" was practically synonymous with the control of contagious disease. For some years now the concept has been extended to encompass chronic, even degenerative, disease where the aim is to suppress recurrence or to retard the progress of illness, or even to accomplish the reinstatement of the afflicted in productive work.

The challenge of rheumatic fever and rheumatic heart diseases is another example of bridging the gap between the concept of preventing the spread of an infectious agent and that of controlling chronic disease. Rheumatic fever is not an infectious disease in the strict sense of the word, for it has long been evident that it is intimately linked to recent or repeated infection with the hemolytic streptococcus. Its incidence has steadily declined in this country during the past thirty years, perhaps, due in part to improved standards of living and hygiene. Since the mid-1930's sulfonamides and penicillin also have provided means for suppressing or curing streptococcus infections. The prompt and adequate treatment of these infections—usually sore throats—with penicillin and the prolonged prophylactic use of sulfonamides or penicillin aimed at preventing subsequent infection can make the "rheumatic state" increasingly rare in times to come.

Even epidemiology, a discipline formerly associated more strictly with the control of infection, is being diligently applied in the field of chronic disease. Atherosclerosis, the basic disease in most instances of coronary thrombosis, is surely one of the most significant chronic diseases with which we are plagued today. Our knowledge of the cause and the natural history of this condition is still primitive. Research in the laboratory has illuminated certain facets of the problem as means have been found to produce a similar condition in animals. Evident differences in the incidence of this disease, or at least of its consequences, among different peoples, and in the same country during times of war or of limited dietary, have stimulated another approach to the problem. A beginning has been made toward applying the technics of epidemiology on a local and, to some extent, on a global scale in an effort to relate factors of race, heredity, occupation, diet, etc., to the incidence of cardiovascular disease. When data so acquired are added to knowledge derived from clinical and experimental studies in man and ani-

mals, means may be disclosed to influence the occurrence or the progress of atherosclerosis.

Rehabilitation of the paralytic and the orthopedic cripple is a firmly established practice. Similarly, cardiac cripples can be rehabilitated too. This entails complete physical appraisal of the patient and of his physiological capacity for work, sometimes reeducation, or training for a different type of job. This approach is already being implemented by arrangements for the proper placement of cardiacs in industry, access to sheltered workshops, and work simplification courses for the cardiac housewife. Adequately evaluated and properly placed, the rehabilitated person with cardiac disease can live and work productively.

The achievement of the objectives implicit in these broadening concepts of "public health" requires the thoughtful collaboration of the medical profession and voluntary health agencies, such as the American Heart Association and its affiliates, and the community. On a broad scale, however, it is equally obvious that the health officer has the principal official task of integrating the findings of laboratory and clinical research into maximum community application and implementation. As always, universal adoption of preventive measures, in step with ever mounting authentic scientific supporting data, presupposes in this as in earlier fields of control a militant and continuing health department emphasis and leadership.

Some International Trends in Nutrition

A release by Science News Letter September 3, 1955, carried the headline, "World Population Booms to More Than 2.5 Billion." The initial alarm, however, about threats of starvation upon reading such an announcement was tempered by the good news released earlier in the year from United Nations' agencies. For the first time since World War II the rate of food production over the world had increased faster than the populations had grown. The gain included both quantity and quality, so that the net result in 1954–1955 represented a gain in improved health and higher standards of living. This accomplishment was achieved despite continued serious difficulties in specific areas.

The most severe problems in different countries stand in strange contrast. Although gross undernutrition and malnutrition still persist in many parts of the world, in the United States the most damaging kind of malnutrition appears to be overweight—strikingly evident both statistically and physically. The excessive intake of calories has been accompanied by over-all improvements in the nutritive quality of the food consumed, but overweight as such gives no assurance that the food intake is qualitatively adequate. In fact, those who overeat with greatest abuse to their bodies are frequently those who are least considerate of the quality of their diet. Nevertheless, the food supply available to the American public in normal channels of trade, if consumed with reasonable discretion by a well informed public, would furnish an abundance of all the nutrients known to be necessary for optimum health. Perhaps one should add that this goal need not sacrifice the normal enjoyment of eating. A modest degree of sensible education and discipline, along with continued research, would suffice to solve most of the currently recognized problems.

Market-wise, the situation is about as badly unbalanced over the world as the nutritional picture. In this respect, too, the tide was turning slightly toward

improvement near the end of the year. Food was beginning to flow more freely from areas of stored surpluses to those of greatest need. However, the wasteful, politically enforced investment of the Commodity Credit Corporation (USDA) in price-supported commodities stood at the astounding figure of $7,745,366,000 at the end of October, 1955.

Partly as a result of recent broad advances in nutrition research and education, but in part as the fruit of several years of intensive effort on the part of United Nations personnel (especially the Food and Agriculture Organization, the World Health Organization, and the United Nations Children's Fund) world-wide attention has been focused on the great need to provide for better nutrition of mothers and children—especially through the immediate postweaning years. Otherwise, the penalties imposed during this critical period lead to an enormous world-wide wastage in life and vigor. The resulting restriction on potential service as citizens can scarcely be appraised despite its magnitude.

The problem centers most intensely on the need for good quality proteins, but deficiencies in this respect are often accompanied by mineral and vitamin deficiencies. Hence, first emphasis is directed toward increased supplies of milk, meat, eggs, fish, and green leafy foods plus antiscorbutic fruits, and finally upon plant proteins which are individually inadequate, but when scientifically adjusted on a complementary basis with respect to their amino acid content could suffice to alleviate the major incidence of injuries caused by protein deficiency. These nutritionally appraised foods under investigation include cereals as a main caloric source and such low-cost available items as the flours that can be furnished from presscake residues in the manufacture of oils from sesame, peanuts, soybeans, and possibly cottonseed.

The cooperation of private agencies and industry with national and international government agencies in working toward common goals of the above nature is reassuring in terms of the contribution to human health which may be expected within the immediate years and decades ahead.

(The Journal is indebted to Charles Glen King, professor of chemistry, Columbia University, and executive director, Nutrition Foundation, Inc., New York, N. Y.)

Brucellosis Amendment Adopted in New York State

The Public Health Council of New York State has adopted an amendment to the State Sanitary Code effective July 1, 1959, to require that milk to be sold after pasteurization shall come from herds proved to be free from brucellosis.

The requirement provides that "Whenever milk or milk products are to be sold or offered for sale or delivered to consumers after pasteurization, all herds providing such milk shall be brucellosis-free in accordance with the applicable rules and regulations of the New York State Department of Agriculture and Markets, or in accordance with a corresponding state agency having jurisdiction of animal health for the area in which the herd is located, which are accepted by the New York State Department of Agriculture and Markets as equivalent to the rules and regulations adopted by their Department."

The Place of Health Services in the Structure of State Government

The provision of public health services is an accepted responsibility of government. Throughout recorded history governments have assumed in a varying degree the responsibility for the protection of the health of the people. In an enlightened society the motivation for the assumption of this health responsibility is for humanitarian purposes. Moreover, no nation, state, or community can afford to condone conditions which adversely affect the health of the people. National economy, the nation's defense potentials, industrial and agricultural production, and the welfare of the people individually and as a nation are dependent upon their health status.

Public health has been defined as the science and art of (1) preventing disease, (2) prolonging life, and (3) promoting health and efficiency through organized community effort. Government has assumed to a variable degree the responsibility for providing some of these services. Voluntary health agencies are an important factor in the provision of others. It is an axiomatic principle of public health practice that government should provide only such health services as the individual cannot provide for himself, with the help of his family physician, dentist and other practitioners, or such services as can be provided most effectively on a community basis.

Public health practice is a specialty. Its administration requires knowledge and skills in medical sciences, public administration, analysis of community health needs, as well as methods of providing community health services. The objectives of a public health program administered by any government are to give the services for which it has assumed responsibility in an effective and economical manner to all of the people who need the service at the time and place where the services are necessary. Because of the complexity of recent developments in the medical and social sciences, public health practice is dynamic and its administration must be flexible, ready to adapt itself to the application of new knowledge and at the same time ready to meet catastrophies—both natural and man-made. Public health services and responsibilities assumed by state government should therefore be under the direction of the most competent experts available—who have at top level direct access to the state's chief executive, the governor. On November 11, 1953, the American Public Health Association adopted an official statement, "The State Health Department—Services and Responsibilities," which in part is quoted herewith:

> "The protection and promotion of the public health in any state is of such importance that each state should have an independent department of health responsible directly to the governor."

The American Public Health Association wishes to call attention to public officials and to all interested in the development of state public health programs the need for the development of a favorable climate for the administration of the health services and responsi-

This statement carries the approval of the Committee on Administrative Practice (November 14, 1955), of the American Public Health Association.

bilities which the state has assumed. In order to effectively and efficiently practice public health state government should provide for an independent department of health or public health in which are concentrated as many health activities as can reasonably be assigned to it. Some health functions may be assigned to other departments or agencies. In these instances the health department should coordinate the total health program of the state. It is not in the interest of the health and welfare of the people to disperse health services and responsibilities among a large number of agencies—this so diffuses public health administration that neither the public nor the practitioners of the healing arts know where each health service is administered. Moreover, to combine public health practice with such activities as welfare or agriculture makes it impossible to obtain an administrator who is an expert in each. While certain combinations may be advisable in federal government, at the state level where the health department is primarily a service agency as well as a consultant and supportive arm to local health agencies, it is paramount that its chief executive be a public health specialist. For these reasons the American Public Health Association reaffirms its statement:

"Each state must provide for an independent state department of health with direct access to the governor, since to do otherwise is to sacrifice effectiveness and efficiency in health services and is not to the best interest of the people."

Committee on Administrative Practice

ROSCOE P. KANDLE, M.D., Chairman
REGINALD M. ATWATER, M.D., Secretary
FRANKLYN B. AMOS, M.D.
MARGARET G. ARNSTEIN, R.N.
M. LEON BAUMAN, M.D.
DEAN A. CLARK, M.D.
PAUL M. DENSEN, D.Sc.
KENNETH A. EASLICK, D.D.S.
VLADO A. GETTING, M.D.
PAUL M. GOLLEY, M.D.
T. PAUL HANEY, M.D.
PAUL A. HARPER, M.D.
HENRY VAN ZILE HYDE, M.D.
CLARENCE W. KLASSEN
JOSEPH G. MOLNER, M.D.
MACK I. SHANHOLTZ, M.D.

Consultants:

HAVEN EMERSON, M.D.
FRED W. JACKSON, M.D.
HENRY F. VAUGHAN, Dr.P.H.

Chesley Lectureship at Minnesota

An annual "Albert J. Chesley, M.D., Lectureship in Public Health" has been set up at the University of Minnesota. The late Dr. Chesley was instrumental in founding the School of Public Health at the university and was for 20 years professor of public health in the Department of Preventive Medicine. Harold S. Diehl, M.D., dean of the School of Medicine, is chairman of a 13-member committee that will organize the lectureship. Contributions, payable to the University of Minnesota, may be mailed to the Chesley Memorial Fund Committee, Room 205, Coffman Memorial Union, University of Minnesota, Minn.

Committee on Administrative Practice

The Committee on Administrative Practice, as the members of the Governing Council may remember, is one of the four Standing Committees of the Association authorized by the Association's Constitution. It consists of 15 Fellows, 12 of whom are designated by the Executive Board to serve overlapping terms of four years each. The remaining three are elected by and from the Fellows affiliated with the Health Officers Section for overlapping terms of three years each. The committee is charged with the collection of information regarding current public health practices and the analysis of the material obtained in order to derive standards of organization and achievement. The current membership of the committee includes persons from seven different sections of the Association.

During the past year the Committee on Administrative Practice through its subcommittees has made reasonable progress. One of the most important events of the year was the appointment of Edward Press, M.D., as the field director of the Association. One major responsibility of the field director is to serve as staff for the Committee on Administrative Practice. Dr. Press brings to the Committee on Administrative Practice a wide experience and an intense interest in the affairs of the committee, which are most welcome. We anticipate a renaissance of Committee on Administrative Practice accomplishments with his help.

After careful consideration it was decided to forego an interim meeting of the Committee on Administrative Practice during the year in order to husband the limited funds available for the use of several of the active subcommittees that were in the midst of specific projects or just starting new ones. The CAP utilized correspondence and newsletter technics to continue their work and planned an extra full-day's meeting in Kansas City in addition to the customary evening dinner meeting.

Subcommittee Activities

The trends in public health and the state of public health practice are reflected in the Committee on Administrative Practice's activities. The most active subcommittees (Medical Care, Chronic Disease and Rehabilitation, and Accident Prevention) indicate the current emphases and the new areas of expansion. It has been a year of searching for facts, patterns, and knowledge by means of surveys and studies. There has also been further seeking for basic principles and policies in these complicated fields.

Chronic Disease and Rehabilitation

The Subcommittee on Chronic Disease and Rehabilitation, whose chairman is Lester Breslow, M.D., of the California State Department of Public Health, has addressed itself specifically to trying to define the role of the official health department in community chronic disease activities. Up-to-date, detailed data are being analyzed from respondents to a questionnaire addressed to 300 selected health departments. An encouragingly high number replied and often provided valuable data beyond that requested. There is evidence that the promotional and consultative work of the subcommittee over the past two years has had an effect in stimulating more and better local programs. The

Report of the chairman of the committee to the Governing Council, November 13, 1955.

survey schedule itself is being used for local appraisals. Work continues on the cooperative relationship between health departments and vocational rehabilitation agencies.

Subcommittee on Medical Care

The Subcommittee on Medical Care, under the chairmanship of Dean A. Clark, M.D., director of the Massachusetts General Hospital, has concentrated on three areas:

1. Medical care of the needy
2. Voluntary medical care insurance
3. Service relating to chronic disease and disability in organized medical care programs.

The revised joint statement with the American Public Welfare Association, "Tax-Supported Personal Health Services for the Needy," which the CAP, the Governing Council, and the Executive Board approved last year, has been actively negotiated with the American Dental Association, the American Hospital Asociation, the American Public Welfare Association, and the American Medical Association. There are large areas of agreement. Relatively minor points are still under negotiation with the American Medical Association. A report is being developed which will view the current status and future potentials of the voluntary medical care insurance movement from the particular vantage point of the health worker interested in the financial purpose of health insurance, but especially concerned with its health objectives.

An interesting detail is that 20 per cent of a selected sample of local health departments now report that they have responsibility for administering general medical care programs.

Accident Prevention

A. L. Chapman, M.D., regional medical director of the New York Region of the Public Health Service, was newly appointed as chairman of the Accident Prevention Subcommittee. This committee conducted a survey of the United States and Canadian health departments to determine how many had active programs in home safety, what the various patterns were, what the needs were felt to be, and how the American Public Health Association could be of help. Over 1,500 full-time state, local, and provincial health departments were approached and between 500 and 600 replies have already been received. The Public Health Service is giving substantial help with the analysis and tabulation of the response. It is hoped that valuable information leading to the development and use of needed new materials and program activities will result. It is also anticipated that a blueprint for health departments that wish to enter into or expand their work in this area will eventuate.

Special study groups in four separate areas of the accident prevention field have been appointed to delve more deeply into child safety, accidents in the aged, traffic safety, and home accident nomenclature.

Nutrition Manual

The new 72-page manual, "Nutrition Practices: A Guide for Public Health Administrators," was published during the summer, culminating a two-year effort by the 14-member subcommittee that we appointed with Daniel Bergsma, M.D., New Jersey state health commissioner, as chairman. The Milbank Memorial Fund, the Nutrition Foundation, and the Williams-Waterman Fund of the Research Corporation gave the financial assistance needed to produce the manual and already over 2,000 copies have been distributed.

State and Local Health Administration

This subcommittee, whose chairman is Vlado A. Getting, M.D., jointly

sponsored a National Conference on Evaluation in Public Health, together with the School of Public Health of the University of Michigan, the Association of State and Territorial Health Officers, the Public Health Service, the Children's Bureau, and the Association of Business Management in Public Health. The conference was attended by over 100 persons with special interest or experience in evaluation from 17 states, the District of Columbia, and Canada. The conference formally recommended that a national clearing house for information and service on evaluation of public health objectives and procedures be developed under the Committee on Administrative Practice of the American Public Health Association.

Local Health Units

A survey by this subcommittee, under Berwyn F. Mattison, M.D., of the Pennsylvania State Department of Health, was directed to the professors of public health practice in the schools of public health, as well as in some departments of preventive medicine of selected medical schools. The objective was to determine what the current trend in teaching might be regarding desirable methods of getting complete coverage of local health services to all areas of the United States. There had been much discussion that the traditional full-time county, city-county, or multi-county health unit was not the optimum method of coverage for all localities. A substantive report on this study is anticipated shortly and may be followed by a proposed restatement of principles for later action by the Executive Board and the Governing Council.

Other Subcommittees

Persistent but discouraging efforts to achieve wide and permanent protection from endemic goiter by the addition of iodine to salt continue. However, no acceptable means has yet been found to secure support for the necessary legislation either national or state in spite of continued effort by this subcommittee under its chairman, O. P. Kimball, M.D.

The Subcommittee on Interstate Acceptance of Milk, whose chairman is Clarence W. Klassen of the Illinois Department of Public Health, after circulating and publishing in the American Journal of Public Health a Proposed Report on the Interstate Acceptance of Milk, has now submitted a formal report on recommended principles and procedures involved in this problem. This report is being presented to the Committee on Administrative Practice for their adoption. The subcommittee has also requested endorsement of a statement stressing the importance for all milk control administrative personnel to adjust the interpretation and enforcement of their milk regulations to recognize and accept interstate and intermarket movement of rated milk supplies.

The Subcommittee on Sanitation, under Harold A. Whittaker, chairman, is currently engaged in developing a set of standards to evaluate the sanitation of swimming pools jointly with the Public Health Service.

The Guide to a Community Health Study has been revised and reprinted this year. Over 800 copies have been sold. The National Health Council has recently assumed the responsibility of encouraging and aiding the self-surveys of local health councils and health agencies throughout the country. It has organized a special committee on self-surveys.

Another interesting development is the completion of a project by the Association of Business Management in Public Health that was initiated at the request of the Committee on Administrative Practice. This is the study of

automotive transportation in health departments and the report describes the various advantages and disadvantages of the three chief methods currently used for reimbursing health personnel for automobile travel.

The Committee on Administrative Practice expects to continue its leadership in the practice of public health as it has for so many fruitful years. Intensified efforts will be made in the coming year regarding the complex problems of evaluation and the committee will continue its studies of the newer aspects of public health, without neglecting the old.

ROSCOE P. KANDLE, M.D.
City Department of
Health, New York,
N. Y., Chairman

"Tonight's awards cover many important fields of medicine.

"In the field of heart disease, you honor a University of Minnesota surgical team which has made possible new and daring types of heart surgery, and you honor a University of Wisconsin biochemist who has given us a new weapon against coronary thrombosis.

"I am particularly happy to salute the award winner in the field of mental disease, the Menninger Foundation of Topeka, Kans. We are very proud of our good Kansas neighbors, Drs. Karl and William Menninger. I commend them and all their colleagues who are bringing a new day of hope for the hundreds of thousands of mentally ill in this country.

"In the field of tuberculosis, you honor a team effort in the creation of a new and powerful drug against this dreaded killer.

"Typifying the breadth of the Lasker Awards, tonight you honor a Canadian doctor responsible for the large-scale production of a vaccine against poliomyelitis.

"Nothing could make me happier than the Lasker award to the Nursing Services of the U. S. Public Health Service. I have a profound respect for this great health arm of our government. As the frontiers of public health have widened, its thousands of dedicated workers have risen to meet new responsibilities.

"All these people honored tonight, and their distinguished predecessors, should be an inspiration to all of us. As they reached out into the unknown and brought us new knowledge, there were undoubtedly many times when the obstacles seemed too great and the voices of the defeatists too loud. But they persevered, and they climbed the mountain.

"New medical knowledge cannot reach or benefit the public promptly and fully without the dedicated, devoted work of men and women. Let us work together and march together to our goal of a happier and healthier America."

(Excerpt from the address by Harry S. Truman, November 17, 1955, on the occasion of the annual presentation of the Albert Lasker Awards at the 83rd APHA Annual Meeting in Kansas City, Mo.)

Committee on Professional Education

This year of the Committee on Professional Education has in many ways been a most unusual one. Besides carrying on the more or less routine activities of CPE, such as the accreditation of schools of public health, the development and publication of formal statements on educational qualifications, training, and so on, we can in 1955 face our whole problem from a new angle.

Recruitment Progress

This is the year that the Health Careers project came into fruition, and the publication of the volumes Health Careers Guidebook and Partners in Health represents a new situation. Members of the Governing Council will have noted these attractive volumes published by the National Health Council with assistance of the Equitable Life Assurance Society, and in the preparation of which the APHA has had a sustained and active interest.

As a result of distribution of copies to the nation's 29,000 secondary schools, requests for information regarding public health jobs and how to prepare for them have quadrupled. Thousands of copies of the educational qualifications reports have been sent to teachers, students, and counselors. With the interest in public health thus aroused, the CPE is more than ever aware of the urgent need for a publication describing the activities of a health department—a dynamic, eye-appealing portrayal of the individual jobs. Acting on the evidence that public health is still too little understood, the Subcommittee on Recruitment has urged that as a basic aid to recruitment there should be a clearer definition, both for the public and the profession, of the content and direction of public health. Action on this has been postponed with the thought that the symposia at this Annual Meeting on "Where Are We Going in Public Health?" should contribute to this exploration and provide a base on which to make public health more widely understood.

The committee can report progress in what has been termed an epidemiological study of recruitment problems. At the request of the CPE, the University of North Carolina is cooperating in this project. Plans have been outlined and funds will be sought for a study of problems surrounding recruitment of public health physicians to determine attitudes that influence the choice of a career. The procedures worked out for the study of medical personnel can then be applied to other disciplines.

Roadblocks in the recruitment of nursing and sanitation personnel have been identified and recommendations have been referred to the proper professional groups. For example, it has been recommended that the problem of integration of public health in the curricula of schools of nursing and in undergraduate engineering schools be studied.

The Vocational Counseling and Placement Service, though rarely bringing new recruits into the field of public health, helps to bring job and worker together. The committee has recommended expansion and improvement of this service. This is possible only with more funds than are now available in the Association budget.

Report of the chairman of the committee to the Governing Council, November 13, 1955.

Accreditation of Schools of Public Health

Following a nine-year period of accreditation of schools of public health, the committee agrees that a review of accreditation standards as they affect both recruitment and quality of public health practitioners is in order. Such review will be going on during the coming year as well as cooperation with the Association of Schools of Public Health in a study of admission standards in the schools. There has been no change in the number of schools accredited.

Educational Qualifications Reports

Revisions of three of the educational qualifications reports will be presented to the Governing Council during this week. They include Educational Qualifications of Directors of Public Health Departments; of Industrial Hygiene Personnel Other Than Medical, Dental, and Nursing; and of Sanitary Engineers.

Professional Examination Service

The PES continues to develop new uses for its examination services. These now touch the professional life of health workers at many points: at the level of professional education as a part of licensure processes, for admission into the Public Health Service, for admission into state and local health department programs and for subsequent promotion in these programs, for determination of professional competency at the highest level—that of diplomate status.

Approximately 10,500 candidates have taken written tests, prepared by the PES, to obtain licenses to practice their professions. Each year, over 20,000 persons in 25 professions in the health field take PES examinations as a part of their professional training or to obtain positions in public health.

This past year the goal of a five-year plan aimed at developing adequate financial support from direct payment for services was reached.

Members of the staff have spoken at meetings of a number of professional organizations such as the American Veterinary Medical Association, the National Association of Boards of Pharmacy, the Health Officers' Conference of Ohio, the Amherst Health Conference, the Civil Service Assembly, the American Association of Dental Examiners, and the Council on Dental Education of the American Dental Association.

There is a noticeable increase in the extent to which the help of the PES is sought by persons who have a problem in which written tests can be useful. For example, the American Physical Therapy Association asked for and is using an examination to assist it in appraising the education of foreign-trained therapists. The questionnaire used in the New Jersey Safety Education Project was devised with the assistance of the PES.

The attainment of financial goals and the growth and diversification of program are, in retrospect, the major ingredients of a year for PES that was in effect the realization of past hopes.

This CPE, of which I have had the honor now to be chairman for six years, is made up, as you know, of 12 Fellows representative of the various sections serving terms of three years with four terms expiring each year. The By-Laws make the committee responsible for carrying out research and for the development of standards for professional education and training in public health work with the objective of maintaining professional qualifications of high standard.

In 1950 when I made my first report to the Governing Council, I spoke of the unique record of leadership which the committee had enjoyed during the preceding ten years under the chairmanship of Dr. William P. Shepard.

In that decade some 13 new reports on educational qualifications had been published relating to 11 occupational groups. What we now call the Professional Examination Service was founded as well as the system for accrediting schools of public health.

During the last six years we have consolidated these gains so that now there are 20 statements of the committee which have been adopted or are in process of adoption by this Governing Council. Looking back also reminds us how different has been the reception in 1955 of the Proposed Report on Educational Qualifications of Directors of Public Health Departments over that proposed just 20 years ago on which in 1935 an acute controversy broke out about the Association's position. In 1955 the publication of the proposed report moving forward from other declarations by the Governing Council has evoked only one comment and that was of an editorial rather than a substantive nature.

The Association is indebted to the leadership of Dr. W. S. Leathers as well as to Dr. W. P. Shepard and to several hundred active participants across the years.

LEROY E. BURNEY, M.D.
U. S. Public Health Service,
Washington, D. C., Chairman

Grant for Mental Health Study

The intent of the federal Mental Health Study Act, passed by the 83rd Congress, is being carried out by a nongovernmental Joint Commission on Mental Illness and Health. To this commission the Public Health Service has made an initial grant of $250,000 for the first year's support of "a nation-wide analysis and reevaluation of the human and economic problems of mental illness." The act authorizes the Surgeon General to award a total of $1,250,000 to nongovernmental organizations for this purpose.

Jack R. Ewalt, M.D., clinical professor of psychiatry, Harvard Medical School, and commissioner, Massachusetts State Department of Mental Health, will direct the study from Boston headquarters.

The American Public Health Association, one of 25 organization members of the Joint Commission, is represented by John D. Porterfield, M.D., director, Ohio State Department of Mental Hygiene and Correction.

Committee on Research and Standards

✟ Time is relative, having significance directly related to the experiences of the individual. At 35 a man is old in the eyes of a five-year-old son. On the other hand it is said that 24 hours in solitary confinement seems an eternity before the period is over. I can tell you from personal experience that two hours as the center of interest for a legislative budgetary group can seem interminable.

What has this to do with the annual report of a committee steeped in the public health significance of the private lives of the electron-proton-neutron trio of U238 or the ozone-nitrous oxide-hydrocarbon triangle affecting the comfort and happiness—and possibly health—of many? Why should a five-year-old's creaking view of his father have pertinence in the annals of a committee devoted to the detection of B. coli in cream or lead in blood or the control of coccidioidomycosis? Simply because time is an essential component of any annual report, and this year time has selected the Committee on Research and Standards for special recognition.

A Quarter-Century of Service

Twenty-five years ago you authorized the formation of the committee "to carry out research and develop standards." Is a quarter of a century a long time? We of the committee are proud of what Research and Standards has added to the coffers of public health knowledge and practice. We think a brief basking in the glory of past accomplishments is justified today. We hope you can agree that the committee has lived its life well during the past twenty-five years and that the last one has been as noteworthy as previous ones.

A Few Stars

We think you should be told exactly what you have had working for you in this committee. You probably know that there is a total of 15 members, usually three new ones being appointed each year. So far 74 Fellows of the Association have served. Among these are 11 past presidents and eight winners of the Sedgwick Medal. Seven have received, or will receive at this meeting, Lasker Awards. With that background you should not be surprised to learn that in 25 years 33 different volumes have been published. This represents 18 different titles, of which 12 were first published under the Committee on Research and Standards, and the balance representing revisions of volumes prepared previously by other committees of the Association.

Publicity on a Global Basis

Those of us on the committee realize that other committees of the Association have helped to establish the fame of the APHA in many parts of the world. We are anxious to have the Governing Council know that through translations of Research and Standards' reports the name of the Association has been introduced to those who read: Chinese, Finnish, French, German, Italian, Japanese, Portuguese, Siamese, Spanish. We are in correspondence now with regard to translations into Turkish and Arabic.

One volume, the Eighth Edition of Control of Communicable Diseases in

---

Report of the chairman of the committee to the Governing Council, November 13, 1955.

Man, was sold out of the first printing of 65,000 copies in three months. The second printing of 85,000 has been moving rapidly.

The affairs of the committee have continued to prosper during the past year. Once again, we are presenting only a thumbnail sketch of the activities of the various subcommittees. Should anyone desire further information he should feel free to ask for it from the Association office.

New Ventures

The committee wants to tell you particularly of five new areas of interest under development. We are anxious to do this so that you can be kept informed of these expanding endeavors of the Association and also so that you can be assured that this Committee on Research and Standards is not following a static program.

Chemical Poisons

Last year the committee received a special report on the increasing hazards presented by the current phenomenal growth in the use of chemicals around the household. Many chemical compounds prepared for industrial or agricultural use under the supervision of trained technicians have been made available for general utilization. This has introduced potentially many poisons to the ever inquisitive child or the careless adult.

George M. Wheatley, M.D., has been asked to organize a committee to cope with this new public health hazard. He has done so and he and his committee have selected the establishment of a chain of poison control information centers as the first specific task to be accomplished. A few of these centers were in operation before formation of the committee. As a result of stimulation by the committee it is hoped that every part of the United States will have an information center within easy reach. Establishment of a central clearing house for information is also visualized.

Health versus Air Pollution

There is no need to remind you that all segments of our population in every part of the country are beginning to realize the growing intensity of air pollution. Aside from esthetic effects, there is the somber specter of possible chronic health deterioration looming through the smog. Much speculation has occurred about the relationship of air pollutants to cancer, heart disease, and other chronic illnesses. Reliable information is needed.

The Committee on Research and Standards believes the Association has an opportunity and a responsibility to take a leading part in establishing an understanding of the health-air pollution relationship. John J. Phair, M.D., has accepted the request to form a committee to study the public health aspects of air pollution. His committee is closely tied in with the activities of the advisory committee to the air pollution studies being carried on at the Kettering Institute. Three specific tasks have been undertaken: (1) outline needed research; (2) review and interpret current developments; and (3) prepare pertinent reports.

A Full Stomach, but Malnourished

The history of public health in the United States highlights the importance of proper nutrition to public health. Pellagra, rickets, goiter, and beriberi are but a few of the acute manifestations of poor nutrition. Most of the acute manifestations do not present major problems in the United States now, but they are of prime concern in some other parts of the world. Of equal impor-

tance in all parts of the world including North America is chronic malnutrition. Your committee believes that food deficiency diseases can be considered, from a public health viewpoint, much in the way we have considered infectious diseases in the volume Control of Communicable Diseases in Man. Henry H. Sebrell, Jr., M.D., with the help of Solomon H. Axelrod, M.D., and James P. Dixon, Jr., M.D., are considering the subject and preparing an outline of a Manual on Malnutrition and a type discussion of one "disease." Preparation of the manual is still a topic of discussion. There is no doubt of the worldwide need for such a guide.

Mental Health a Problem?

A recent report of a public health conference presented a summary which included the statement, "Mental Health is one of the biggest problems confronting government." Certainly mental health is looming ever larger as a major public health problem. In terms of hospital beds being utilized, of man-days lost from useful employment and in terms of human suffering, here is a new frontier demanding attention. Furthermore, it is the opinion of your committee that the Association should be doing something about it, and Paul V. Lemkau, M.D., has been requested to submit a brief on what can be done by your committee and the Association to stimulate and promote research aimed at prevention and control of mental illness and the promotion of mental health.

A Growing Matter

Last year, Sidney S. Chipman, M.D., and Bernard G. Greenberg, Ph.D., were asked to make a special study of research needs in maternal and child health matters. Their report has been received and circulated among interested Sections. Your committee will give further thought to this topic in the light of comments submitted by the Sections.

Subcommittee Activities

There is not space to detail the many activities of the subcommittees. Most of these have been discussed in previous reports. Members of the committees are listed in the Association Committee List appearing in the April, 1955, Journal. We wish we could list individually all of the persons who are active in the doings of the Committee on Research and Standards. Since this is out of the question, it does seem appropriate on this twenty-fifth anniversary to list the chairmen of the various subcommittees. They are:

Ferdinand R. Hassler, M.D., Coordinating Committee on Laboratory Methods

Alfred L. Burgdorf, M.D., Subcommittee on Care of Communicable Diseases in General Hospitals

George M. Wheatley, M.D., Subcommittee on Chemical Poisons

John E. Gordon, M.D., Subcommittee on Communicable Disease Control

John J. Phair, M.D., Subcommittee on Health Aspects of Air Pollution

C.-E. A. Winslow, Dr.P.H., and M. Allen Pond, co-chairmen, Subcommittee on the Hygiene of Housing

Pearl L. Kendrick, Sc.D., Subcommittee on Laboratory Research on Multiple Antigens

Captain Van C. Tipton, MC, USN, Subcommittee on Radiological Health

Jerome B. Trichter, Subcommittee on Sanitation of Food Utensils.

Special mention is made of Dr. Hassler who as chairman of the Coordinating Committee directs a whole series of his own subcommittees, which are as follows:

Antimicrobial Agents (Disinfectants), Nicholas D. Duffet, Ph.D., chairman

Applications of Phage Typing Technics, Earle K. Borman, chairman

Approval of Culture Media, Leon Buchbinder, Ph.D., chairman

Diagnostic Procedures and Reagents, Albert H. Harris, M.D., chairman

Diagnostic Procedures for Virus and

Rickettsial Diseases, Thomas Francis, Jr., M.D., chairman

Laboratory Examination of Shellfish, Cornelius B. Kelly, Jr., chairman

Laboratory Methods for the Examination of Air, F. Wellington Gilcreas, chairman

Methods for the Microbiological Examination of Foods, Harry E. Goresline, Ph.D., chairman

Reference Methods for Syphilis Serology, John F. Mahoney, M.D., chairman

Standard Methods for the Examination of Dairy Products, Luther A. Black, Ph.D., chairman

Standard Methods for the Examination of Water and Sewage, F. Wellington Gilcreas, chairman.

Dr. Hassler is completing three years of service as chairman of this important laboratory methods galaxy.

All of the committees mentioned are carrying on their programs with diligence. In some cases this means developing new plans, in others going on with well formulated objectives.

Carrying the Gospel

The past year has been made particularly noteworthy by the number of publications. Two are official Association reports, namely, Control of Communicable Diseases in Man, Eighth Edition, and Standard Methods for the Examination of Water, Sewage and Industrial Wastes, Tenth Edition. Two other reports emanating from the Coordinating Committee on Laboratory Methods are Care of Laboratory Animals and Methods for Determining Lead in Air and in Biological Materials, Second Edition. This latter report was prepared by a committee of the Occupational Health Section.

Publications translated into foreign languages include: Control of Communicable Diseases in Man in French, Portuguese, Japanese, and Spanish. Standard Methods for the Examination of Water, Sewage, and Industrial Wastes translated into Spanish and Italian. We are in communication now on the possibility of translating Diagnostic Procedure for Virus and Rickettsial Diseases into Turkish.

We are told "By their fruits you shall know them." Would you say that you have here a committee that has borne fruit to your liking? It is your committee. By your individual constructive suggestions its contribution to the public health can be further enhanced.

MALCOLM H. MERRILL, M.D.
State Department of Public Health, Berkeley, Calif.,
Chairman.

"The people of the United States have inherited a commitment, and have the responsibility to provide for all a full opportunity for a free public education regardless of physical, intellectual, social, or emotional differences, or of race, creed, or religion.

"The fullest measure of local initiative and control should be maintained, but no level of government (local, state, or national) should be relieved of its appropriate responsibility in fulfilling this commitment."

(From the Report of the White House Conference on Education to President Eisenhower on the "significant and pressing problems in the field of education." The report is arranged under six topics.)

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

A Vote of Confidence

The Health Department of Calcasieu Parish-Lake Charles, La., has received a vote of confidence from the citizens by way of a 10-year renewal of a one and one-half mill parish tax to support the department. The usual renewal period has been five years. The approval was 10 to one in terms of votes; 12 to one in terms of property valuation represented by the votes.

Guillermo Vasquez, M.D., is parish health officer, serving about 90,000 persons.

Pierre the Pelican Series Expanded

Because of many requests from both individuals and groups, the Louisiana Association for Mental Health, 816 Hibernia Bldg., New Orleans 12, has decided to expand its Pierre the Pelican series to cover the preschool years. When completed, the expanded series will include 28 pamphlets, 12 of them devoted to the first year, six to the second year, three each to the third and fourth year, and two each to the fifth and sixth. The series is described as "an educational service in mental health in the hands of young parents that will include the most strategic years."

The series is expected to be available within several months. In the meantime readers are asked to anticipate them but not write for them.

"Treasure Hunt" for Home Hazards

"Health Newsletter" of the Saskatchewan Department of Public Health reports a game played by more than 200 children in one of the schools of Prince Albert. The treasure hunted was accident hazards that could cause serious accidents in the home—and correcting them.

In 200 homes visited by the children more than 600 accident hazards were found. The most frequent were cluttered stairways or hallways and loose scatter rugs. Smoking in bed, medicine improperly stored, and guns within easy reach of children were among the others.

This serious game was sparked by the fact that home accidents were the greatest single cause of accidental fatalities in Saskatchewan for three previous years, exceeding both traffic and farm deaths.

Quarterly Dental Reminders

The Health Department, the public schools, and practicing dentists of Hartford, Conn., are cooperating to get periodic dental care for every school child in the city.

The Health Department has prepared a series of four reminders to parents. These are sent out at intervals—the first before the beginning of the school year. This one outlines the need for care, gives dates of the various school vacations during the year, and suggests early appointment with dentists. The latter meanwhile have agreed to make as much time as possible for children during these vacation periods.

One of each of the others is sent to parents several weeks before each vacation period as a reminder. Each is in color; each has some special attention-

calling feature. The one just before the summer vacation uses the Davy Crockett motif. These are prepared and distributed by the Health Department.

The Hartford health officer, Alfred L. Burgdorf, M.D., would probably share a set of these reminders with others having a similar problem. The public health dentist, Leonard F. Menczer, D.D.S., reports an additional by-product in that this activity "has made the practicing dentists feel they were receiving a real service from their local health department and creates a nice working relationship between public health and private dentistry." Hartford Health Department, 56 Coventry St., Hartford 12, Conn.

How to Be Understood and Popular

The editor of the West Virginia Associated Press Log recently wrote an enthusiastic report after attending a State Health Department news conference. Quoting from it:

"There was a time when the Health Department was one of the hardest spots in the state government from which to dislodge the simplest bit of news . . . twitted the department about playing so close. . . . So it's only fair to report a complete reversal which has taken place over many months.

"First, the state health director inaugurated a series of regular press conferences. Reporters explored a different phase of public health at each conference, and each time Dr. Dyer called in the appropriate officials to answer questions. Those sessions yielded some good copy.

"The conferences are no longer held on a regular basis, largely because all the ground had been pretty well covered. But Dr. Dyer has continued the policy of open-handedness with health news. The policy has been extremely helpful to reporters—and health officials, too, for that matter—with polio vaccine developments so much in the news in recent months. With each new major development, Dr. Dyer has promptly called a news conference. He doesn't end a conference arbitrarily or limit its time. . . . No longer can a newsman who comes away without all the dope blame the department or anyone else but himself."

Perhaps this bears some cause and effect relation to the fact that the 1955 legislature passed some significant health legislation, particularly as related to local health services. And that at least one county has already taken advantage of the authorization to organize a full-time, city-county health department.

A Simple Exchange of Information

In September, 1955, the Scientific Products Division of the American Hospital Supply Corporation began distributing a monthly news letter primarily as a "problem clearance" medium and a communication source for information on new products and new laboratory technics. It is presently a one-page affair signed by the vice-president of Scientific Projects. The October issue reported on how some technologists prepared the Papanicolaou staining slides for mailing.

Laboratory technicians are invited to use the letter to share with readers any new technics developed or to request details on new and improved laboratory equipment.

Scientific Products Division, 1210 Leon Place, Evanston, Ill.

A Primer on Health Councils

The Florida State Health Department is not afraid of involving the public widely in health planning for the state and its various communities. The October issue of "Florida Health Notes" is devoted entirely to health councils—what they are, how they are started, and stories of what a number of local councils accomplished. The oldest health council in the state was organized in 1925. Now there are one or more councils in 38 of the 67 counties of the state.

This new pamphlet might well take its place along with "Stepping Stones to a Health Council" (National Health Council) and "Key to Community Health Planning" (American Medical Association) as an aid in organizing citizens for health.

"Needs: Councils: Action: Florida Health Notes," October, 1955, Florida State Board of Health, Jacksonville.

Worth Acquiring

"Growing Up Safely" is prepared for leaders of the various groups of Camp Fire Girls to stimulate activities in traffic safety education. Although designed especially for a special group of girls from seven to 18, it could well be adapted by other groups for both girls and boys. Program Department, Camp Fire Girls, 16 East 48th St., New York 17, N. Y.

"America and You," with a flag on the cover, has as its theme "strong people make a strong country." This pamphlet tells in great detail how to get strong through proper food. It is written in simple chatty language in large easily read type. But it goes far beyond the ordinary nutrition manuals in the wealth of suggestions as to how to get and make the most use of nourishing food. For example, it has information on gardening, on planting fruit trees, on sharing curing houses, on freezing, canning, and storing. The black-and-white illustrations help to tell the story.

"America and You," revised 1955. Julia Porcher Brunson, Division of Maternal and Child Health, South Carolina State Department of Health, Columbia. No information on out-of-state distribution.

"When the Migrant Families Come Again: A Guide for Better Community Living," although prepared for the 1955 migrant laboring season, is just as valuable in preparing for the 1956 season. Published by the federal Interdepartmental Committee on Children and Youth, this is a group of stories about local programs affecting the well-being of migrant families—and not to be overlooked, the communities to and from which they migrate. Whether it be getting the children in schools, starting medical clinics, making migrants feel at home in club, church, shops and the community generally, better housing, the community working together has resulted in improved relations between permanent resident and visitor in better health and better school.

"Communities are finding," says the pamphlet, "that good living and working conditions help to get good workers."

Included is a "Guidesheet for a Community Starting to Plan," a list of persons and agencies who can help, as well as a list of pamphlets and articles, and a short outline of "Ways of Working Used by Communities."

U. S. Gov. Ptg. Office, Washington 25, D. C.; 15 cents.

"School Shop: Learn Safe Work Habits Here!" was prepared for use by vocational shop teachers of trade courses, industrial art shop teachers, labor unions, and employers. Its primary aim is to encourage safety instruction before the young person takes a job in industry. The writing is simple, the illustrations expressive. Prepared jointly by the U. S. Office of Education and the Bureau of Labor Standards of the U. S. Department of Labor. Limited number of free copies are available from the latter. Paul E. Gurske, Director, Washington 25, D. C.

Annual Reports

"Half a Century of Light: 1905–1955" is the report both of the year 1954 of the New York Association for the

Blind, but also of its half century of growth and service. Preceded by a year and a half in which the two Holt sisters carried on a ticket bureau for getting concert and theatre tickets for blind persons, the Lighthouse was founded in November, 1905, eventually to be one of the activities of the association organized later. Within four months a workshop for blind men had been opened.

Completeness of service was the cornerstone of Winifred Holt's planning from the earliest day—prevention, adjustment, training, employment, and education of the public about blindness and blind people. To these has been added in modern times only research.

Starting with the Lighthouse in the Holt home in 1905, the association now has a four-story building in the heart of Manhattan in which are carried on a variety of activities, including sales rooms for the products of blind crafts. Lighthouse Industries, a residential club house for blind men, two nursery schools, two training and two recreation centers, two camps, and a cottage for preschool children and a research division, the Ophthalmological Foundation, are in its present portfolio. Besides which, it is the putative parent of the National Society for the Prevention of Blindness.

The report is handsomely printed and illustrated. "Facts and Figures for 1954" appear in a separate folder.

The director of this million-dollar operation serving about 5,000 blind persons annually is Philip Platt, Ph.D. Among the staff of over 400, nearly one-half are blind persons.

"Alfred P. Sloan Foundation: Report for 1953–1954" is first of all a handsome and readable report. But more than that it is the story of how more than $28,000,000 of "social venture capital" has been spent in the 18 years of the foundation's life. The report indicates the responsibility of large foundations to use their funds "for experiment, research, demonstration, and the search for new knowledge."

During the 18 years nearly one-third of the foundation's grants were made for medical research, about 9 per cent for technical research, about one-sixth for popular education, and nearly one-fifth for industrial management. Smaller amounts ranging from one to two and a quarter million dollars went for leadership training, economic research, experimental-administrative, and scholarships.

For the past two years the directors have been making investigations to "identify and appraise possible new areas of activity" in which to commit funds. As a result three new major programs have been added. A special fund of five million dollars, both interest and principal, has been set aside for basic research in the physical sciences. A new national scholarship project has been created, described as "a systematic program of financing a college education for a sizable group of young men." The third project will provide research grants to medical schools.

Among the major projects that have received the continuing support of the Sloan Foundation are the Sloan-Kettering Institute for Cancer Research in New York, the Southern Research Institute of Birmingham, Ala., for maintenance of its research program in biochemistry, the Council for Research in Glaucoma and Allied Diseases, and the Alfred P. Sloan Award for Highway Safety administered by the Automotive Safety Education. A reading of this biennium report is a good introduction to the many-faceted interests of which a board of such a foundation must be aware.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Antimetabolites and Cancer—Edited by C. P. Rhoads. Washington, D. C.: American Association for the Advancement of Science (1515 Massachusetts Avenue, N.W.), 1955. 318 pp. Price, $5.75, prepaid to AAAS members, $5.00.

Included under this heading is a series of 18 papers presented by 20 authors at a symposium on December 28–29, 1953, during the Boston meeting of the American Association for the Advancement of Science. There are 58 tables, 64 figures and graphic formulas, and four pages of photographic plates which implement the text. The volume is effectively edited by Cornelius P. Rhoads, who contributed the preface as well as one of the papers in this series.

All who are concerned with the problems of chemotherapy in malignant disease and those who wish to broaden their knowledge of the challenging subject of antimetabolites will find a wealth of information in this edition.

The papers cover a broad spectrum of related areas: from metabolic fuels of the cancer cell and the competitive inhibition of microbial growth by normal metabolites, to the antimetabolite treatment of leukemias, the tumor-destroying effects of viruses and the antimetabolite principle as applied in hormone-induced tissue-growth and to hormonal control of neoplasms.

The text is clearly written and readily understandable by those who have a good working knowledge of biology and chemistry and are familiar with terms which are currently used in the medical sciences; it is particularly recommended to the attention of those engaged in research, teaching, and treatment of cancer, and in study of the problems of growth. LEONID S. SNEGIREFF

Services for Handicapped Children. A Guide to General Principles and Practices for Public Health Personnel—Committee on Child Health of the American Public Health Association. New York: APHA (1790 Broadway), 1955. 150 pp. Price, $1.50.

Despite the modest title, this manual is more than a guide, and its usefulness is not limited to public health personnel. It outlines organization of services and describes appropriate procedures, after considering the complex problems and needs of handicapped children. As an expression of broad principles and practices applicable to all handicapping conditions, its usefulness is enhanced by the related manuals dealing with specific groups of handicaps.

Recommendations for practice are kept flexible by consideration of present knowledge of needs and existing differences in community situations. The authors have managed to maintain a balance between fundamental principles and the practical problems encountered in their application. A striking approach to services is that of the whole child as an individual in his family and social setting, with consideration of general health protection and comprehensive medical, psychological, social and educational care, as well as provision of specific services as indicated.

Personnel shortage is approached from the standpoint of development and maintenance of high standards of services. There are practical ideas for fostering community understanding and

support of comprehensive services, staff, and basic research.

The reviewer congratulates the subcommittee of the Committee on Child Health of the American Public Health Association and their advisory group and consultants on the breadth, balance, and quality of this guide.

This manual will require early—and possibly frequent—revision, for it is destined to be the "guide" of many workers and needs to keep pace with the rapid advances in knowledge of basic needs and effective services.

HAROLD C. STUART

Services for Children with Dentofacial Handicaps—Committee on Child Health of the American Public Health Association. New York: APHA (1790 Broadway), 1955. 80 pp. Price, $1.50.

This is one of a series of excellent guides for public health personnel, prepared by the Child Health Committee of the American Public Health Association, on desirable principles and practices to be used in planning services for handicapped children.

The guide is well organized and practical and should prove to be of inestimable help to the administrator in his basic planning for a program in a very important but comparatively untried area of public health administration. It includes sections on concepts and facts about dentofacial handicaps, causes and prevention of dentofacial handicaps, case finding and screening, diagnosis and planning for care, treatment and guidance, organization of community resources, research, program study, and evaluation.

Much of the guide is devoted to the problems of orthodontic care, as this service is needed by most children with dentofacial handicaps, but emphasis is also placed on the complexity of the problem and the importance of the team approach to diagnosis and treatment.

The guide is authoritative, representing the collective professional opinion of leading experts in the various disciplines concerned with dentofacial handicaps. It lends itself to most effective use in conjunction with the general guide, "Services for Handicapped Children," and the companion guide, "Cleft Lip and Cleft Palate."

GOLDIE B. CORNELIUSON

Macmillan Medical Cyclopedia—By William A. R. Thomson. New York: Macmillan (60 Fifth Avenue), 1955. 1013 pp. Price, $6.95.

This reference work meets its claim of being "somewhere in between a technical dictionary of medicine and a book on the household treatment of common ailments." Originally published in Great Britain under the title of "Black's Medical Dictionary," it undoubtedly has served a purpose through 22 editions.

The volume will be most suitable for household use rather than for professional purposes. Its approach to the subject is typically British in most respects. REGINALD M. ATWATER

Earning Opportunities for Older Workers—Edited by Wilma Donohue. Ann Arbor, Mich.: University of Michigan Press, 1955. 277 pp. Price, $4.50.

This book is sixth in the excellent series in the gerontological field published by the University of Michigan. It brings into focus the many problems besetting the older person who wants (and may need) to work, and the ways in which these problems are currently being studied. There is nothing like well documented statistics to show trends, pension costs, union policies, etc.; these give a broad outline and a wealth of detail for reference. Fortunately, the book is more than this alone. Its section on taking inventory of the older individual as a worker

gives insight into changing skills, health considerations, motivations, counseling, and training—and moves one on to what is perhaps the most useful part of the book to the general reader, the section on creating new earning opportunities for older workers. Who creates them? The worker himself, business and industry, the community—through voluntary groups—and the state. Balancing the emphasis on the value of work, which is the theme of the book, is the final article by the late Dr. Martin Gumpert, which reminds the reader of other values of age. As he puts it, "Making a Life, and Making a Living."

Dr. Donohue has done her usual splendid job of editing and has included an excellent bibliography of references. JOSEPHINE M. SMITH

Working Together for Healthier Children—Prepared by the Subcommittee on the Coordination of School and Community Health Services, Interdepartmental Health Council, Herman E. Hilleboe, Chairman. Albany, N. Y.: New York State Department of Health, 1954, 135 pp.

This paper-bound booklet is a report designed for (1) personnel of all public and private agencies in New York State, (2) all New Yorkers concerned with school and community health services for children, and (3) other persons throughout the country interested in school and community health. The purpose of the report is to present a guide for present and future action. It is the desire of the subcommittee that this guide serve as a stimulus to bring about cooperative participation in child health activities in New York State.

The report is an excellent source of reference for the many school and community groups who are striving to develop cooperative programs for healthier children.

It begins with a wholesome point of view based on the idea that "a healthy and happy life in a free society is the heritage we have to give our children." It is stated clearly that to bring about coordination of school and community health services a knowledge of the pertinent resources is essential in the fields of health, education, mental hygiene, and welfare. Working together for healthier children can be achieved only through the coordination and effective working of each of the above fields.

The objectives, policies, program activities, functions of personnel, and responsibilities of each agency or resource are spelled out cogently and distinctly.

As an example of one responsibility of the school, the curriculum in health education is sketched thoughtfully and succinctly to show the essence of health teaching for healthier living. Likewise, the relationship of school health education to public health education in the Health Department is discussed. An understanding of these relationships and responsibilities in all elements of the program is essential for teamwork and coordination.

It is significant to relate that a chapter on organization for coordination of school and community health services emphasizes that "the best possible health for all" is the common objective of school health and other elements of the community health program. Occasionally today this basic objective is overlooked or ignored by school or community groups who are working for their own vested interests rather than using the team approach for healthier living.

Suggested procedures for regional organization and local coordination are well presented and general policies are specified. For example, the report states "the school can be used to advantage as a focal point for development and improvement in the coordination of community and school health

services," and that "full use of the school health instructional program should be made to assist in developing a community awareness with regard to health problems for an effective school and community health program."

In this reviewer's opinion, the report is a valuable practical guide for effectual school and community health by means of the team approach. Working together for healthier children is not new in theory; however, as an operative process it is new in many localities. The content material is so purposeful that future editions would warrant a better format and binding.

EDWARD B. JOHNS

Obstetrics—By J. P. Greenhill (11th ed.). Philadelphia, Pa.: Saunders (West Washington Square), 1955. 1088 pp. Price, $14.00.

This is the eleventh edition of the original textbook by DeLee, again thoroughly revised and rewritten, though only four years have elapsed since the tenth edition. This is published in essentially the same format as in the 1951 book. It is double column in an easily readable type face. Some changes have been made in better bold face printing of section and paragraph headings. The book is slightly longer, and 125 new illustrations have been added, although some old ones have been removed.

The arrangement of chapters is much the same. Some subjects previously treated in larger groups have been given single chapter importance, notably endocrine diseases. On the contrary, the previous several chapters on puerperal infection have been consolidated. Both moves are improvements. There have been a few minor rearrangements in the sequence of chapters. The illustrations, as they have always been in this text, are superb. They are lucid, pertinent, and thoroughly instructive.

Considerable new material has been added in several chapters, particularly in the subjects of physiology, toxemia, hemorrhage, and the medical complications of pregnancy. The bibliographies with each chapter are excellent lists of the representative literature. The author presents theoretical matters and practical applications advantageously in close association. As in the past, the sections on Mechanisms of Labor and on Operative Obstetrics are especially good.

This reviewer, however, would like to see in some textbook designed for medical students and the nonspecialist practitioner more emphasis on the normal and preventive aspects of pregnancy care. Perhaps it is inevitable that the abnormal will always overshadow the normal, but it would appear valuable to establish more of the concept of pregnancy as a normal physiological function which reaches every age and phase of the lives of women—and men. Pregnancy is a family matter and can and should be treated as such.

This edition admirably maintains the position of this book as one of the leading standard texts.

SAMUEL B. KIRKWOOD

Educators Guide to Free Films (15th ed.). 591 pp., price, $6.00. **Educators Guide to Free Slidefilms** (7th ed.). 185 pp., price, $5.00. Randolph, Wis.: Educators Progress Service, 1955.

This is the 15th annual edition of the Film Guide and the seventh annual edition of the Slidefilm Guide. These standard works have grown each year in their number of listings and now represent a reasonably complete index of free films and slidefilms. More than 3,000 films are briefly described with a listing of data, including the running time, the sources where prints are available, and in most cases (praise be) the year when the film was originally released. The same procedure is followed

in the slidefilm volume and both of the guides include a subject index which is helpful to persons who are planning programs and seeking appropriate visual aids.

The Slidefilm Guide lists a total of 619 titles, including 281 silent slidefilms, 301 sound slidefilms, and 37 sets of slides. Incidentally, the editors plump for the word "slidefilms" as a definitive term for these visual aids. This seems to be a laudable clarification in a field which has been cluttered with "film strip" and other designations. There is an excellent brief description of slidefilms, slidefilm equipment, and its use. This should be of assistance to beginners in the field.

These two volumes are, as usual, well and simply organized, and printed in large readable type. The film descriptions are specific and objective but, of course, provide no guide to any film's technical or artistic excellence. Discriminating users of visual aids must order and preview the material if they wish to judge its suitability for an intended audience. ARTHUR KNEERIM

Bekämpfung der Silikose, Forschungsarbeiten (The Fight Against Silicosis, Investigative Studies)—Edited by F. Lange. Essen, Germany: Glückauf, G.M.B.H., 1955. 126 pp. Bound 12 DM.

This volume represents a synopsis of various phases of this subject by several investigators. Lange discusses the methods for the control of dust in mines by controlling its formation, by fixation of the deposited dust, by introduction of new procedures, and by personal protection. He mentions measures for the appraisal of dust exposure, the use of aerosols for the control of pneumoconiosis, and the economic and social significance of silicosis for the mining industry. Dr. H. Cauer describes the investigative studies of aerosol technic made at the Experimental Station Hannibal and points out the limitations of these procedures.

Dr. H.-W. Schlipköter reports briefly on results of electronmicroscopic studies of silicotic tissues made at the Institute for Hygiene and Microbiology in Düsseldorf and Dr. Klosterkötter discusses the value and possible mode of action of various protective agents in the treatment of silicosis.

These reports are followed by the minutes of a discussion of the various aspects of these problems by a number of authorities in this field. The book ends with two reports by diplomate-physicist H. Steiger on graphical evaluation of particle size of aerosols produced by generators and their physical behavior. The book should be interesting to students of silicosis because it gives a good picture of the problems and of the difficulties encountered in their solution. W. F. VON OETTINGEN

The Zoonoses in Their Relation to Rural Health—By Karl F. Meyer. Berkeley, Calif.: University of California Press, 1955. 79 pp. Price, $1.00.

This publication is the printed edition of the paper which was presented during the course of the technical discussions of the Seventh General Assembly of the World Health Organization. Some of the diseases which are discussed are not currently a problem in the United States; however, the diversified interests of the international group to which the paper was addressed must be recognized.

It is the opinion of the reviewer that, because of the limited space permitted for each disease, an overemphasis is placed on significance, geographic distribution and incidence, in relation to that which is allowed for discussions of epidemiology. Particularly desirable, however, are the charts accompanying the discussion of each major zoonosis, which present in graphic form the epi-

demiology of the particular disease. Inasmuch as the scope of the presentation is limited to a review of the zoonoses affecting rural health the author could not be expected to elaborate on any one of the diseases.

There is an excellent discussion of the need for more accurate animal morbidity reporting and the values of such reporting to health and agricultural agencies, as well as to practicing veterinarians and physicians. Emphasis is placed on the zoonoses which are of importance because of their direct and debilitating effect upon the health of the rural populations, and recognition is given to the impact of such diseases on the world's food supply.

The sections dealing with organization of the control of the zoonoses at all levels of government, as well as the training needs of public health veterinarians, reflect the author's extensive association with the fields of veterinary public health and education. While this cannot be considered as a textbook on the subject of veterinary public health, it certainly emphasizes the importance of including trained public health veterinarians as a component of the epidemiology team and places veterinary public health in its correct perspective in relation to official health department administration.

This publication will be of value to persons interested in the zoonoses as a rural health and agricultural problem and in schools of public health and veterinary medicine. MARTIN D. BAUM

Studying Your Community—By Roland L. Warren. New York: Russell Sage Foundation (505 Park Avenue), 1955. 385 pp. Price, $3.00.

This book is the third of a series of publications from the Russell Sage Foundation dealing with methods and problems of working with the broad welfare and health problems of communities and represents an evolution, one building on the other. The predecessors are Margaret F. Byington's, What Social Workers Should Know About Their Own Communities, 1911, and Joanna C. Colcord's, Your Community: Its Provisions for Health, Education, Safety, and Welfare, 1939.

The earlier publications were primarily community study guides for social workers. The book under review is directed toward a more varied group of citizens, both laymen and those professionally engaged in some branch of community service, including health services.

There would seem to be little doubt that Professor Warren, a sociologist, has accomplished his objective. His book is truly encyclopedic and should be a valuable source book for those who wish to save considerable time in appraising community services of every description, including methods involved.

This book is not one to be read as one would a novel or a well developed scientific treatise. Rather, it should be scanned for over-all orientation and, thereafter, the sections on community activities of greatest interest to the reader can be reviewed in detail.

ODIN W. ANDERSON

Methods for Determining Lead in Air and in Biological Materials (rev. ed.)—New York: American Public Health Association (1790 Broadway), 1955. 69 pp. Price, $1.25.

This manual, prepared by the Committee on Chemical Procedures of the Occupational Health Section of the American Public Health Association, represents a complete revision of the 1944 report, with the addition of new material and the replacement and omission of some old material. Some new references have been included in the bibliography and larger type and better section headings have improved readability. The general organization, how-

ever, follows that of the report in 1944.

An excellent introduction discusses chemical methods, physical methods, and choice of method. The recommended methods are those that have been tested over a number of years and have general rather than specific utility. The generally useful dithizone methods are stressed and given in great detail. Spectrographic and polarographic methods are also discussed and described, but not so extensively.

This reviewer was pleased to note that the analyst is cautioned not to indulge in assumptions with respect to the absence of interfering metals when he is dealing with biological materials. Very properly stressed also is the responsibility of the analyst in prescribing and supervising methods of collection of samples to insure their freedom from contamination. The reviewer would suggest that future revisions should expand the treatment of spectrographic and polarographic methods. The latter, in particular, might frequently replace other less convenient methods without the need for exorbitant expenditures for equipment.

This excellent manual should be available to every chemist interested in determining lead. WILLIAM SEAMAN

Cancer Nursing. A Manual for Public Health Nurses—A joint project of the National Cancer Institute, Public Health Service, U. S. Department of Health, Education, and Welfare and the New York State Department of Health (rev. ed.). Albany, N. Y.: New York State Department of Health, 1955. 88 pp.

The first edition of this manual on Cancer Nursing was good, but this revision is far better. In fact, it is excellent in every way and thus becomes an indispensable tool for every public health worker—I do not limit its usefulness to public health nurses. Its information is accurate, up to date, and stated and illustrated with rare clarity and simplicity. It would be difficult to find fault at any point.

Nurses will find the directions for home nursing procedures and the adaptation of diet to special postoperative conditions particularly helpful. Preradiation preparation of the patient, radiation therapy, and rehabilitation seem to this reviewer especially well done.

Only one item of information is missing from this otherwise comprehensive booklet: where does one order this manual and how much does it cost? We have supplied the information here, but it should have been clearly stated in the publication itself.

DOROTHY DEMING

Premature Infants—By Ethel C. Dunham (2nd ed.). New York: Hoeber Harper (49 East 33 St.), 1955. 459 pp. Price, $8.00.

This book has been completely revised and reset and is now bound in hard cloth. It is divided into four sections: Part I deals with the incidence, causes, and prevention of prematurity, while Parts II and III cover the clinical and public health aspects and valuable additional data are usefully collected into an appendix.

The second edition enhances the good reputation gained by its predecessor and this book should continue to be the best reference book on prematurity.

There is much to praise, and little to criticize. There are one or two omissions, such as the risk of kernicterus from hyperbilirubinaemia even in the absence of hemolytic disease, and the risk of the development of resistant organisms from misuse of antibiotics, but generally speaking, the subject is excellently covered and is up to date. The book is readable and well produced. Pediatricians, obstetricians, and medical officers of health should not only read this book, but keep a copy readily available for reference. V. MARY CROSSE

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ACCEPTED DENTAL REMEDIES 1956. Chicago, Ill.: American Dental Association, 1956. 206 pp. Price, $2.00.

ADVANCES IN VIRUS RESEARCH. Vol. III. Kenneth M. Smith and Max A. Lauffer. New York: Academic Press, 1955. 338 pp. Price, $8.00.

AS YOUR CHILD GROWS: THE FIRST EIGHTEEN MONTHS. Katherine M. Wolf with Aline B. Auerbach. New York: Child Study Association of America, 1955. 32 pp. Price, $.40.

BACKGROUND TO BITTERNESS. THE STORY OF SOUTH AFRICA 1652–1954. Henry Gibbs. New York: Philosophical Library, 1955. 255 pp. Price, $4.75.

COLLECTED PAPERS ON AVIATION MEDICINE. PRESENTED AT THE AEROMEDICAL PANEL MEETINGS OF THE ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT, PALAIS DE CHAILLOT, PARIS. New York: Interscience Publishers, 1955. 209 pp. Price, $5.00.

CONGENITAL HEART DISEASE. Report of the Fourteenth M & R Pediatric Research Conference. Columbus, Ohio: M & R Laboratories, 1955. 118 pp.

CONTEMPORARY DEVELOPMENTS IN OCCUPATIONAL HEALTH. SECOND ANNUAL WORKSHOP IN INDUSTRIAL NURSING, MAY 13–14, 1955. Oklahoma City, Okla.: University of Oklahoma School of Medicine, 1955. 182 pp. Price, $2.00.

CYBERNETICS. CIRCULAR CAUSAL AND FEEDBACK MECHANISMS IN BIOLOGICAL AND SOCIAL SYSTEMS. TRANSACTIONS OF THE TENTH CONFERENCE APRIL 22–24, 1953. Edited by Heinz Von Foerster, et al. New York: Josiah Macy, Jr. Foundation, 1955.

DOCTOR'S OFFICES AND CLINICS: MEDICAL AND DENTAL. Paul H. Kirk and Eugene D. Sternberg. New York: Reinhold Publishing, 1955. 218 pp. Price, $12.00.

EDUCATION FOR THE PARENTS OF EXCEPTIONAL CHILDREN. Reprinted from Vol. 1 of SPECIAL EDUCATION FOR THE EXCEPTIONAL. Edited by M. E. Frampton and E. D. Gall. Boston, Mass.: Porter Sargent, 1955. 32 pp. Price, $.65.

FEEDING YOUR BABY AND CHILD. Benjamin Spock and Miriam E. Lowenberg. Boston, Mass.: Little, Brown, 1955. 226 pp. Price, $3.75.

HANDBOOK OF VITAL STATISTICS METHODS. STUDIES IN METHODS. Series F, No. 7. United Nations Publication. New York: Columbia University Press, 1955. 258 pp. Price, $2.50.

HYPNOTIC SUGGESTION. S. J. Van Pelt. New York: Philosophical Library, 1955. 95 pp. Price, $2.75.

MENTAL HEALTH AND GUIDANCE FOR EXCEPTIONAL CHILDREN. Reprinted from Vol. 1 of SPECIAL EDUCATION FOR THE EXCEPTIONAL. Edited by M. E. Frampton and E. D. Gall. Boston, Mass.: Porter Sargent, 1955. 80 pp. Price, $1.25.

MENTAL HEALTH THROUGH WILL-TRAINING. Abraham A. Low. Boston, Mass.: Christopher Publishing House, 1955. 393 pp. Price, $5.00.

MYCOBACTERIUM TUBERCULOSIS: BACTERIOLOGY, BIOCHEMISTRY, LABORATORY DIAGNOSIS AND CHEMOTHERAPY. Milton Gross. Jersey City, N. J.: Margaret Hague Maternity Hospital, 1955. 41 pp. Price, $1.00.

NUTRITION IN INDIA. The Indian Journal of Medical Sciences. Bombay: Hind Kitabs Limited, 1952. 345 pp. Rs.15–8.

ON THE NATURE OF MAN. AN ESSAY IN PRIMITIVE PHILOSOPHY. Dagobert D. Runes. New York: Philosophical Library, 1956. 105 pp. Price, $3.00.

PLANNING NEW INSTITUTIONAL FACILITIES FOR LONG-TERM CARE. Edna Nicholson. New York: Putnam's, 1956. 358 pp. Price, $4.50.

PRINCIPIOS DE ADMINISTRACION SANITARIA. TEORIA Y PRACTICA DE LA SALUBRIDAD EN AMERICA LATINA. Gustavo Molina G. and Guillermo Adriasola E. Santiago, Chile: Universidad de Chile, 1955. 284 pp.

PRINCIPLES OF BACTERIOLOGY AND IMMUNITY (2 Volumes). G. S. Wilson and A. A. Miles (4th ed.). Baltimore, Md.: Williams and Wilkins, 1955. 2331 pp. Price, $24.50.

PROTEIN MALNUTRITION. PROCEEDINGS OF A CONFERENCE IN JAMAICA (1953) SPONSORED JOINTLY BY THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (F.A.O.) WHO, JOSIAH MACY JR. FOUNDATION, NEW YORK. New York: Columbia

University Press, 1956. 277 pp. Price, $3.50.

SOCIETY AND HEALTH. Walter E. Boek and Jean K. Boek. New York: Putnam's, 1956. 301 pp. Price, $4.50.

STUDY OF THE NEEDS OF OLDER AND CHRONICALLY ILL PERSONS IN THE CITY OF OTTAWA. Marjorie Bradford. Ottawa, Canada: City Department of Health, 1955. 87 pp.

A Selected Public Health Bibliography with Annotations

It Works!—Preliminary reports show that the paralytic poliomyelitis attack rates among the (partially) vaccinated children were strikingly lower than among comparable unvaccinated groups, especially in epidemic areas. Final results are yet to be computed.

ANDERSON, O. L. Progress Report on the Poliomyelitis Vaccine Program. J.A.M.A. 159, 16:1522 (Dec. 17), 1955.

And It Is Safe!—This is the report that the Surgeon General read at the Special Session on Poliomyelitis at our 83rd Annual Meeting. The study committee concludes that the vaccine, as it is now required to be processed, is entirely safe. Increased amounts should become available.

BODIAN, D., et al. Interim Report, Public Health Service Technical Committee on Poliomyelitis Vaccine. J.A.M.A. 159, 15:1444 (Dec. 10), 1955.

Elusive Viruses—Those of us who try to keep abreast of the current efforts to penetrate that involved maze of respiratory virus infections will hunt out this account of still another study in that difficult research area—which thus far has given us PAR, ARD, RI-67, and APC viruses, each with multiplying subtypes. Hopes that these new virus infections will prove amenable to laboratory detection have been realized only in part, the authors comment.

BERGE, T. O., et al. Etiology of Acute Respiratory Disease, Among Service Personnel at Fort Ord, California. Am. J. Hyg. 62, 3:283 (Nov.), 1955.

Call to Arms—This brief but deeply disturbing address should be read by every blessed soul among us. "The mental health movement" asserts this world health statesman, "is one of the great pressures in the direction of sanity and eventual peace on earth." But, he adds, there is nothing automatically self-operative about it. To get results we will have to work.

CHISHOLM, B. Mental Health in Our New Kind of World. Ment. Hyg. 39, 4:529 (Oct.), 1955.

Optimists, Limited—A world-ranging review of the tuberculosis situation, as the picture has changed during the first seven years of the antimicrobial era (1947–1953), leaves one with a fairly comforting sense of security until he reaches the end, which reminds him that in the four "best" countries—the United States, Great Britain, France, and Germany—there are still more than a million known, active cases of the disease.

DROLET, G. J., and LOWELL, A. M. Where-to

Tuberculosis? Am. Rev. Tuberc. 72, 4:419 (Oct.), 1955.

Pro BCG—From England, where the authorities have long been more kindly disposed toward BCG than are ours, comes this quite definitive report. Children are still exposed to tuberculosis and this exposure cannot entirely be prevented. Vaccination at birth is safe, practical, and effective—though vaccination does not obviate the need for other preventive measures. It would not be possible to carry out mass vaccinations even if that were desirable, says the author. So the protection should be reserved for infants known to come from, or to be going to, tuberculous households.

GAISFORD, W. The Protection of Infants Against Tuberculosis (Two Parts). Brit. M. J. 4948:1101 (Nov. 5), and 4949:1164 (Nov. 12), 1955.

Pioneering Here—A thorough-going account of a productive rehabilitation service that was set up by a county health department to meet the needs of handicapped children and some adults, too. The clinic service did the necessary job better—and at less cost—than the older plan of sending patients to a distant institution at county expense.

GRANT, M. How One Health Department Helps the Handicapped. Pub. Health Rep. 70, 12:1201 (Dec.), 1955.

Encouraging Statistics—How, and what, are public health nurses doing? Who employs them, and is the employment trend up or down? How many are qualified for the jobs they hold? A very recent census supplies some answers.

HAGERMAN, L. C. The 1955 Census of Public Health Nurses. Am. J. Nursing. 55, 12:1493 (Dec.), 1955.

For Alcoholics—A judge, long experienced in the futile handling of drunks as criminals, submits a 10-point plan for effective care of chronic alcoholics. The plan acknowledges the useful precedents established by a few states and directs itself to what New York State might well be doing.

ISAACS, J. Legislation and Alcoholism. Pub. Health Rep. 70, 12:1161 (Dec.), 1955.

The Socially Elect and Babies—One answer to a widely asked question (where are all these babies coming from?) is given here: "Among the younger women, the 1940–1950 increases in fertility tended to be sharpest in the 'upper' educational and occupational groups." Please don't let this lone quote, inadequate and atypical as it is, prevent you from looking up this stimulating study.

KISER, C. V. Changes in Fertility by Socio-Economic Status During 1940–1950. Milbank Mem. Fund Quart. 33, 4:393 (Oct.), 1955.

Not Necessarily Gluttons—Some untenable dietetic assumptions, some superior attitudes toward fatties, and some plain lacks in our scientific knowledge of weight control are set forth in illuminating detail. They all explain, to a degree, why we do so poorly in our weight-reduction efforts with obese groups and individuals. This you really should read.

MAYER, J. New Attitudes Toward Obesity. Nursing Outlook. 3, 12:640 (Oct.), 1955.

Influenza Vaccines—British researchers, it appears, are making arrangements for broad clinical trials of the influenza vaccines that have proved promising in laboratory studies. Convincing success in the field will be dependent upon a convenient epidemic of suitably typed influenza.

MCDONALD, J. C., and ANDREWS, B. E. Diagnostic Methods in an Influenza Vaccine Trial. Brit. M. J. 4950:1232 (Nov. 19), 1955.

Fluoridated Dentifrice—In this reported study stannous fluoride added to a dentifrice reduced by half the DMF rate of the controls. When sodium fluoride was added no beneficial results could be demonstrated. If these findings are supported, another anticariogenic agent may be added to the existing topical applications, fluoridated water supplies, proper nutritional and cleanliness factors, and good dental care.

MUHLER, J. C., et al. A Comparison Between the Anticariogenic Effects of Dentifrices Containing Stannous Fluoride and Sodium Fluoride. J. Am. Dent. A. 51, 5:556 (Nov.), 1955.

Sanitation's Penalty—They made the most of an unusual opportunity to study the behavior of poliomyelitis in a small community with high living standards and excellent sanitary environment. Though the initial focus of the small epidemic was in a nursery school, the infection spread quickly to the families and out-of-school contacts. A third of the cases were in adults.

NOLAN, J. P., et al. Poliomyelitis: Its Highly Invasive Nature and Narrow Stream of Infection in a Community of High Socioeconomic Level. New England J. Med. 253, 22:945 (Dec. 1), 1955.

Lethal Weapon—Only half the casualties of the Korean conflict were caused by the enemy. Automobile accidents accounted for most of the rest. During the same period, automobiles killed more Americans at home than all the Korean casualties combined. Says this officer, "with a properly constructed and equipped automobile you can crash it and live."

WENGER, D. S. Crash and Live—Need Cars Kill More Soldiers Than Guns? J.A.M.A. 159, 14:1347 (Dec. 3), 1955.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publication in which they appeared; the addresses are furnished for your convenience.

Am. J. Hyg. (American Journal of Hygiene), 615 N. Wolfe St., Baltimore 5, Md.
Am. J. Nursing (American Journal of Nursing), 2 Park Ave., New York 16, N. Y.
Am Rev. Tuberc. (American Review of Tuberculosis), National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.
Brit M. J. (British Medical Association House), 19 Tavistock Square, London W.1.
J. Am. Dent. A. (Journal of the American Dental Association), 222 E. Superior St., Chicago, Ill.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.
Ment. Hyg. (Mental Hygiene), National Association for Mental Health, 372–374 Broadway, Albany, N. Y.
Milbank Mem. Fund Quart. (The Milbank Memorial Fund Quarterly), 40 Wall St., New York, N. Y.
Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.
New England J. Med. (New England Journal of Medicine), Massachusetts Medical Society, 8 The Fenway, Boston 15, Mass.
Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

Association News

Awards of Affiliated Societies

The Journal is indebted to the Public Health Committee of the Cup and Container Institute for the information given below on the merit awards given by a dozen state affiliates and the Western Branch of the Association. The information was obtained as a by-product of explorations preparatory to setting up the new Crumbine Awards in Sanitation. The data have not hitherto been published in one place.

If there are affiliates or unaffiliated state societies that have awards not here listed, the editors will be glad to list them at a later date if the information is made available.

Colorado

Sabin Award—annual citation certificate to a lay person for outstanding contribution to public health outside of professional responsibilities

Connecticut

C.-E. A. Winslow Award—annual plaque for outstanding contribution to public health in the state

Georgia

Bronze Plaque—annually to retiring president

Kansas

Crumbine Award—annual medal to lay or professional person for outstanding contribution to the health of the people in Kansas

Louisiana

Axson-Choppin Award—plaque given annually to a citizen not connected with a health department for outstanding contribution to health progress in the state

White Memorial Award—annual plaque to a staff member of the state department of health for meritorious contribution to health work in the state over a prolonged period

Massachusetts

Shattuck Award—one annual medal to a public health worker for distinguished service in public health

Missouri

W. Scott Johnson Award—scroll given annually to professional public health worker or layman who has made an outstanding contribution to public health in Missouri

New York City

Award of Merit—annual certificate to a public health worker—one in each field—for meritorious service to public health in medicine, dentistry, nutrition, nursing, laboratory service, administration, social work, health education, and environmental sanitation

Outstanding Service Award—plaque presented annually to a public health worker for outstanding service to public health in New York City

New York State

Biggs Medal—given annually to a public health worker for his contribution to public health

Health Education Information Citation—three to four citation certificates annually to newspaper, radio, or TV stations for contribution to better understanding of health matters

North Carolina

Award of Merit—annual citation certificate to group of members associated in outstanding contributions or activities during past year for a local health department or group

Reynolds Award—annual trophy to member or members for outstanding contributions to public health in the state—meritorious service above and beyond the call of duty

Rankin Award—annual trophy to a member for outstanding contribution to public health in the state over a period of several years

Pennsylvania

Honorary Membership—scroll annually to two public health workers for enthusiastic leadership in public health work

Texas

Bryant Award—annual scroll and an expense paid trip to joint Annual Meeting of

the American Public Health Association and the American School Health Association to candidate selected by a Committee of the Texas Public Health Association from nominations made by health agencies or individuals

Western Branch

Sippy Memorial Award—one plaque annually to a public health worker from district in which the Association's Annual Meeting is held that year, for outstanding contribution to the promotion of public health.

Mississippi Public Health Association

The 19th Annual Meeting of the Mississippi Public Health Association was held December 7–9, 1955, in Jackson. This was its first meeting as an Affiliated Society of the APHA.

More than 300 persons were present for the session under the presidency of D. V. Galloway, M.D., director, Bureau of Maternal and Child Health, Mississippi State Board of Health. Cassie B. Smith, also of the State Board of Health, was secretary-treasurer.

During the meeting certificates were awarded to 45 persons who had served the State Board of Health for 25 years or longer, representing a total of 1,333 man years. The excellent entertainment for the annual dinner was provided by talent from within the department. A tour of the new State Medical Center and the four-year School of Medicine, Jackson, was arranged for those in attendance.

Among participants in the program outside the state were: Will H. Aufranc, M.D., regional medical director; H. E. Eagan, milk sanitation training consultant; and W. R. McLean, regional milk and food consultant; each was from the Atlanta (Ga.) Regional Office, Public Health Service; Michael L. Furcolow, M.D., chief of the Kansas City Field Station, Communicable Disease Center, Public Health Service; and Reginald M. Atwater, M.D., executive secretary, American Public Health Association, New York.

The newly elected officers are:

President—Margaret E. Rice, Division of Vital Statistics, State Board of Health, Jackson

President-Elect—Marie Jordan, supervising nurse, Hinds County Health Department, Jackson

Vice-President—D. V. Galloway, M.D., director, Division of Maternal and Child Health, State Board of Health

Secretary—Cassie B. Smith, associate director, Division of Health Education, State Board of Health.

APHA membership application blank on page XXV

Employment Service

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association Office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages.

POSITIONS AVAILABLE

Dentist—Director of city-wide program at a salary range of $7,239 increasing to $8,222. Five-day week, pension, civil service appointment. Excellent general health program. Dr. E. R. Krumbiegel, Milwaukee Health Dept., City Hall, Milwaukee 2, Wis.

Public Health Physician—in city-county health department as director of chronic diseases and tuberculosis control. Includes teaching at the school of medicine. Public health training and experience essential. Minimum salary $8,500–$9,000. Write to Director of Health, 240 E. Madison St., Louisville 2, Ky.

Public Health Physicians—for local health officer positions now open in Oregon. Must have M.D. degree from class A medical school plus M.P.H. and be eligible for licensure in Oregon. Starting salary $10,000 or more depending on experience and training. Merit system, state retirement supplemented by Social Security. Write to: Mr. A. T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland 7, Ore.

Medical Health Officer—for an established two-county health department in southern Colorado. Combined population 38,510, headquarters Trinidad, Colo. Beginning salary $9,600. Requires physician with public health training and experience. Dalton Roberts, Chief, Administrative Services, Colorado State Dept. of Public Health, 414 State Office Bldg., Denver 2, Colo.

Dental Health Consultant—($375 to $500). Degree with a major or certificate in dental hygiene required. Write Merit System Supervisor, Box 939, Santa Fe, N. M.

Qualified Public Health Nurses—Positions in rural counties for nurses with initiative desiring opportunity to demonstrate ability; $320–$399 for nurses with experience, $300–$375 for nurses without experience; five per cent increment after six months and annually thereafter to maximum. New lease cars available for personal and business use, Social Security plus state retirement, merit system. Nursing supervision provided. Write: Miss Marian Chladek, Director, Division of Public Health Nursing, State Dept. of Public Health, State Office Bldg., Cheyenne, Wyo.

Public Health Nurse, or Registered Nurse with desire for public health experience. District health department in southwest Washington. Population 64,000; near Portland, Ore. Five-day week. Seven and one-half cents per mile. Merit system. Write D. A. Champaign, M.D., Cowlitz-Wahkiakum District Health Dept., Courthouse, Kelso, Wash.

Commissioner of Public Health—for the City of Worcester, Mass., population 200,000. Minimum requirements: citizenship, grade A medical school, public health degree, practical public health experience. Well organized staff—75 full-time, 50 part-time. Ideal living conditions. Available April 1. Apply outlining qualifications and background and salary desired to Francis J. McGrath, City Manager, City Hall, Worcester 8, Mass.

Director, Tuberculosis Control—$152–$188 per week. Direction of a state-wide program for the prevention and control of tuberculosis and administrative supervision over the state operated sanatoria. Experience as a practicing physician in the treatment of TB, experience of an administrative nature in a TB hospital or public health TB program. Possession of a certificate of registration for practicing medicine and surgery in Maine. Apply Maine State Dept. of Personnel, State House, Augusta, Me.

Director of Public Health Nursing—Generalized with school program; population 68,000; seven nurses; field training agency for new State College Nursing School. Upper Sacramento Valley in foothills of Sierra Mountains. Liberal personnel policies; 37½ hour week; county car or eight cents per

mile. Salary: $436–$460—$486–$513. Retirement system. Director, Butte County Health Dept., P. O. Box 1100, Chico, Calif.

Regional Medical Health Officers—Required by the Saskatchewan Department of Public Health. Salary: $8,112–$9,588 per annum. Duties: to perform professional medical and administrative work as medical health officer in an organized health region with a population of approximately 50,000; to develop regional preventive health services and a general public health program. Requirements: graduation from an approved medical school; some medical and administrative experience. Diploma or master's degree in public health desirable but not essential. Benefits: three weeks' annual vacation with pay; three weeks' sick leave, accumulative, with pay; suitable superannuation scheme. Opportunity is available for assisted postgraduate training. For application forms contact Public Service Commission, Legislative Building, Regina, Saskatchewan, Canada. For further information write to Personnel Officer, Dept. of Public Health, Provincial Health Bldg., Regina, Saskatchewan, Canada.

Public Health Nurses—$57–$72 per week. Graduation from an accredited school of nursing, completion of a four months' course in public health nursing, and possession of a state certificate as a registered nurse or eligibility thereof. Apply Maine State Department of Personnel, State House, Augusta, Me.

Public Health Physician—Prefer one qualified and interested in position of director, Division of Local Health Services. Would consider individual interested in other types state health department work. Salary range: $9,600–$12,480. Entrance salary dependent upon qualifications. Excellent state retirement plan and state merit system. Position presents challenging public health opportunity. Write Executive Officer, State Board of Health, Helena, Mont.

Maternal and Child Health Director—for established county health department serving 600,000 population suburban to Detroit. Capable person would be considered for faculty appointment to University of Michigan School of Public Health. Desirable qualifications include two years' approved pediatric residency, M.P.H. degree, and three years' experience in a MCH program. Salary: $11,199–$13,599 plus mileage. For full details write to Howard Cadwell, M.D., Director, Wayne County Health Dept., Eloise, Mich.

Public Health Nurse Supervisor—$372–$447. Four years' public health agency experience at least one of which shall have been in a supervisory capacity; graduation from an accredited school of nursing; and possession of a certificate of public health training and eligibility to practice nursing in Virginia required. Harold Hudgins, Personnel Officer, Bureau of Personnel, Norfolk, Va.

Assistant Director of Public Health—$866. Must possess a valid license to practice medicine in Calif., and driver's license.

Public Health Nurses—$360–$417. Must possess a valid California Certificate of registration as PHN. Salary: $378 to start for desert areas.

San Bernardino County Personnel Dept., 236 Third St., San Bernardino, Calif.

Public Health Nurse Superintendent—City of Norfolk, Va. Monthly salary range: $426–$512. Qualifications: five years of full-time experience in a recognized public health agency, two of which shall have been in a supervisory or teaching capacity, and graduation from an accredited school of nursing and a degree in public health. Special requirements: Possession of a certificate of public health training and eligibility to practice nursing in the State of Virginia. Harold Hudgins, Personnel Officer, Bureau of Personnel, Norfolk, Va.

Public Health Nursing—Positions available in Health Department with the city of Flint, a rapidly growing city of 180,000 population. Beginning, intermediate, and administrative positions are available. Five-day, 40-hour week, with liberal retirement, vacation, and sick leave policies. Beginning salary rates, depending on experience and qualifications, $3,498, $3,783, $4,147 with automatic increases. Apply Flint Civil Service Commission, City Hall, Flint, Mich.

Public Health Nurses—State level consultant, local supervisors and staff. Choice of locations. Liberal vacation and sick leave. First level professional PHN salary range $300–$400, intermediate level $340–$440, supervisor $380–$480, consultant $420–$525. Write State Board of Health, Helena, Mont.

Wanted: **Public Health Laboratory Bacteriologist**—Five-day week; start $330 monthy; county retirement system; California Certificate necessary. Write: Dr. Heindl, 810 Scenic Drive, Modesto, Calif.

Health Educator—MPH to direct established health education program in a well staffed health department housed in a new modern building. Beginning salary to $4,500 a year plus eight cents per mile in own automobile. J. H. White, M.D., Director, Weld County Health Dept., Box 521, Greeley, Colo.

Psychiatric Social Worker—New Child Guidance Clinic in West Bend, Wis., 33 miles from Milwaukee. Responsibility includes intake, casework with parents of children in treatment, therapy of children, community consultation and education. Team of psychiatric social worker, psychologist, and part-

time psychiatrist. Salary: $4,572–$5,352. Master's degree with psychiatric sequence, plus two years' experience, some of which has been in child guidance. Amy Louise Hunter, M.D., State Board of Health, 1 W. Wilson St., Madison 2, Wis.

Psychiatric Social Worker—Wanted by the Mental Health Division of the Volusia County Health Unit, Daytona Beach, Fla. Must be a graduate of an approved school of social work and a PSW major and preferably with some experience in a child guidance clinic. Salary will be based on qualifications, training, and experience as determined by the Florida Merit System. R. D. Higgins, M.D., Director, Volusia County Health Unit, Daytona Beach, Fla.

Public Health Engineer—to work in Colorado state public health engineering program. **Public Health Engineer II**—Graduation from accredited college of engineering with one year of experience in public health or sanitary engineering. Salary range $368–$468. **Public Health Engineer III**—Graduation from accredited college of engineering with two years of experience in public health or sanitary engineering. Salary range $422–$538. Opportunity for advancement. Dalton Roberts, Chief, Administrative Services, Colorado State Dept. of Public Health, 414 State Office Bldg., Denver 2, Colo.

Senior Assistant Sanitary Engineer—City of Detroit. $6,382–$7,228. Supervising sanitary engineering work. Requires engineering degree with specialization in sanitary engineering and experience in inspection and analysis of sanitary equipment, processes, and conditions. For detailed information write: Detroit Civil Service Commission, City-County Bldg., Detroit 26, Mich.

Wanted: **Sanitary Engineers**—for positions with state and local health departments. Openings for beginning and experienced engineers with college degrees. Write for announcement showing minimum qualifications, salary ranges, and other information to Florida Merit System, 307 W. V. Knott Bldg., Tallahassee, Fla.

Public Health Engineer—Qualifications: degree from accredited school of engineering, civil or sanitary. Two years' experience in public health work. Salary $5,800–$6,800. Inquire of Ian D. McLaren, M.D., Commissioner, Cattaraugus County Dept. of Health, P. O. Box 573, Olean, N. Y.

Sanitarians—for local health department programs in various localities throughout the state. College graduation with some experience desired. Starting salaries from $300–$335 with periodic increases. Dalton Roberts, Chief, Administrative Services, Colorado State Dept. of Public Health, 414 State Office Bldg., Denver 2, Colo.

Sanitarian—Generalized sanitation; salary range $351–$413. County automobile or eight cents per mile, 37½-hour week, liberal personnel policy. Write: Butte County Health Dept., P. O. Box 1100, Chico, Calif.

Sanitarians—Immediate openings. Beginning salary $356 per month with increases to $436 per month in three years. Generous vacations, sick leave, and retirement provisions. County car furnished. Excellent working conditions in the fastest growing county in the San Francisco Bay Area. Requirements: (1) eligibility for/or registration as sanitarian in California; (2) bachelor's degree in sanitary or allied science; (3) civil service (APHA) examination. Apply: Charles B. Ruegnitz, Chief, Bureau of Sanitation, Alameda County Health Dept., 15000 Foothill Blvd., San Leandro, Calif.

Sanitarians—Two positions available. Sonoma County (Calif.) Department of Public Health. Starting salary $341. County car furnished, civil service. Excellent living conditions. Contact R. S. Westphal, M.D., 3325 Chanate Road, Santa Rose, Calif.

Public Health Engineer I—to work in a generalized program including air pollution control, milk and food sanitation, housing hygiene, vector control, etc. Appointees will go through period of inservice training and supervised work experience. Requirements—college degree in sanitary, civil, mechanical, or chemical engineering. Salary: $4,500–$5,160 per year. **Public Health Engineer II**—to work as a project engineer for special studies in air pollution control, review plans and specifications of combustion burning and air pollution control equipment and engage in field engineering studies. Requirements—college degree in sanitary, civil, mechanical, or chemical engineering and two years of experience in public health engineering, industrial hygiene, air pollution control, or combustion engineering. Salary: $5,160–$6,192 per year. Write Room 127, City Hall, Philadelphia 7, Pa.

Program Coordinator—for long established national organization conducting educational and promotion program in nutrition. Administrative experience and health education background necessary. Advanced degree required. Person employed will coordinate activities of five departments and act as liaison with national contacts in area of health education. Write **Box HE-73,** Employment Service, APHA.

Public Health Nurse Field Supervisor—to implement and coordinate a public health nursing program in several health districts in the City of Philadelphia. Salary—$5,160 to start, with increases to $6,480 per year. Applicants must have master's degree in public health, public health nursing or public health nursing education, and four years of public

health nursing experience, including field and supervisory or administrative experience in a family health agency. Write Miss Madalyn Hall, Director of Public Health Nursing Division, Dept. of Public Health, Room 615, City Hall Annex, Philadelphia 7, Pa., before April 2, 1956.

Public Health Physicians—in maternal health and tuberculosis specialties to fill supervisory positions in a progressive public health program. Salary: $7,777 to start, with increases to $9,770 per year under a merit system career service. Applicants should have four years of professional medical training and experience in either obstetrics and gynecology or in internal medicine, including pulmonary diseases. One year of this experience must be in a public health program. Write Personnel Office, Dept. of Public Health, Room 503, City Hall Annex, Philadelphia 7, Pa., before March 12, 1956.

School Nurse—for well organized and long established school health department in Santa Barbara, Calif.; starts at $3,600 to $4,700, depending on training; annual increments up to $6,100 or $6,400. Car allowance $150. Thirty-five-hour week; work nine calender months; usual school vacations; tenure after three years; B.A. or B.S. and P.H.N. degrees, and own car required. Write L. C. N. Wayland, M.D., Director, Health Dept., Santa Barbara City Schools, 115 West Victoria St., Santa Barbara, Calif.

Public Health Educator III—two positions in Wisconsin. Chief of Public Health Education Program. Good chance of advancement as job develops. Coordinator of School Health Program Services to develop inservice training for school personnel. Salary $406 to $491. Graduate training in public health and two years of responsible experience in education, public relations or public health. Inquire Dr. Carl Neupert, Board of Health, State Office Bldg., Madison, Wis.

Sanitarians—for several openings in San Diego County Health Department. Permanent Civil Service appointments. Requirements: U. S. citizenship; age 21–54, California registration as sanitarian; minimum of one year experience in a recognized local public health agency. Salary $378–$417 monthly (five-day, 40-hour week). Applications and further information available from County Civil Service, Room 402, Civic Center, San Diego, Calif.

College Seniors and Recent College Graduates—(California, Arizona, Nevada, Oregon) trainee positions leading into professional registered sanitarian work. $327–$360 monthly. Bachelor's degree from accredited college with major in biological, chemical, or physical sciences required before employment. Written examination may be given in your locality before graduation. Full details and applications available from County Civil Service, Room 402, Civic Center, San Diego, Calif.

International Vacancies

Malariologists, Public Health Administrators, Public Health Engineers, Public Health Nurses, Nurse Educators—There are several positions open in Latin America and the Caribbean for persons in the above categories. The essential qualifications are public health training and extensive field experience. Malariologists need considerable experience in malaria programs and use of the new residual insecticides. Nurses require advanced training in public health nursing or nursing education, as well as extensive experience in supervision, administration and/or teaching. Spanish is desirable in nearly all cases. Salaries and allowances range from $6,000 to $11,000 per annum. For further particulars, write to the Personnel Officer, PASB/WHO, 1501 New Hampshire Ave., Washington 6, D. C.

Public Health Bacteriologist—for director of public health laboratories for the Air Force in Japan. Pay and fringe benefits approximate $11,000 per year. Must have Ph.D. or equivalent education as minimum. Renewable contract is for 24 months. Family and furniture transported to Nagoya at government expense. For detailed information send air mail letter to Dr. John A. Norton, 5th Epidemiological Flight, APO 1054, San Francisco, Calif.

Public Health Engineer—United Nations World Health Organization invites applications for this post on a schistosomiasis control and demonstration team in Egypt. Candidates should be qualified public health or sanitary engineers, although undergraduate training in engineering may also be considered. In both cases specific experience in schistosomiasis control by the use of molluscicides is required. Additional experience in vector control in relationship to irrigated areas is desirable. The post involves responsibility for planning, organizing, and supervising the environmental sanitation phases of the project, including (1) the use of molluscicides in irrigation channels and drains and weed clearance, to reduce vector snail populations; (2) the organization of sanitation measures to prevent pollution of waterways and exposure of population to infection in waterways and provide for safe water supplies and excreta disposal facilities; (3) to act as adviser to the government, through the project's senior adviser, on public health engineering technics applicable to schistosomiasis control and to train nationals in such technics. Two-year contract, subject to renewal, commencing salary $6,000 United States tax free. Written applications, in English, should state nationality,

age, family, education, full details of past and present employment, and should be addressed to PHE/EMRO, Personnel Section, World Health Organization, Palais des Nations, Geneva. Only those candidates whose qualifications and experience are considered really suitable will receive a reply. Closing date March 7.

POSITIONS WANTED

Public Health Physician—M.P.H. Public health administration: five years as health officer for county-city department and six years at state level as division director for state programs. Special interest in child health. Write **Box P.H.-58,** Employment Service, APHA.

Engineer—Civil with master's degree in public health engineering desires position in health department in Atlantic Seaboard or Great Lakes states; university area preferred. Would consider water or sewage treatment equipment manufacturer. Seven years' experience various health departments, including some teaching. Seven years' general civil engineering and some selling. Excellent health. **Box E-32,** Employment Service, APHA.

Sanitarian—Six years regional supervisor, USPHS; completed USPHS Schools Environmental Sanitation and Insect and Rodent Control. B.S. with major in both bacteriology and psychology. Two and one-half years with county health department in all phases of environmental sanitation. Experienced in administration, planning, and operation of complete sanitation program. Three years in Army in administration and training of personnel. Will relocate; either public or private agency, or industry. **Box S-27,** Employment Service, APHA.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Commissioner of health; attractive resort city, East. (b) Public health physician, particularly well qualified epidemiology; foreign assignment; unusual opportunity. (c) Director, school health (enrollment 5,000), city-county health department; well staffed; North. (d) Public health nurse supervisor; coastal city, 15,000; South America; transportation paid; $6,000. (e) Supervisor and head nurse; outstanding American company; foreign operation; $9,200, $8,580, respectively. (f) Nurse administrator; well organized health department; ideal Florida location. (g) Staff; local health unit; ideal Arizona location; $4,500. (h) Health educator, public health engineer, parasitologist, epidemiologist, bacteriologist; faculty posts; university operated under American auspices; foreign. (i) Health inspector; experienced meat and dairy products inspection; foreign; $700. (j) Public health bacteriologist; university and resort city, Southwest. (k) Health educator; community health agency; large city, medical center, Pacific Coast.

OPPORTUNITIES WANTED

(a) Public health physician; Diplomate; twelve years' administrative experience, metropolitan health departments. (b) Public health nurse administrator; B.S., P.H. Columbia; M.P.H. Yale; seven years' experience as chief nurse, VNA. (c) Health educator; M.S., D.P.H.; five years' teaching; eight years, director, health education, state health department. (d) Public health bacteriologist; M.S. (bacteriology); seven years, bacteriologist, metropolitan health department. (e) Sanitary engineer; B.S. degree; six years, sanitary engineer, state health department.

News from the Field

WHO News

Taking Note of Aging Populations

The public health implications of the aging of populations was the concern of the fifth session of the Regional Committee for Europe. The conclusions are summarized in the December, 1955, "Chronicle of the World Health Organization."

The conclusions have to do, as they do also in the United States, with home care, employment, prevention of disease, hospitals and other institutions, and mental health.

Of the role of the central government the summary has this to say, "While the actual functioning of services for the medical and social care of the aged must generally be entrusted to local bodies, official and voluntary, the central government administration has an essential role to play in guidance, provision of financial grants, and promotion of research. Valuable demographic studies also come within the province of the central authorities, as does coordination of the information supplied by local bodies. The central administration has, in addition, an important place in health education of the public regarding the medical and social problems associated with the aging of the population."

Latin American Population Problems

WHO was one of several United Nations special organizations cooperating with the Brazilian government and Brazilian Institute of Geography and Statistics and the Getulio Vargas Foundation in a seminar on Population Problems in Latin America, held in Rio de Janiero, December 5–16, 1955.

The background of the seminar lies in the fact that the population of Latin America is estimated to be increasing more rapidly than that of any other major region in the world. The types and extent of demographic research needed to further an understanding of population problems as related to housing, public health, education, food consumption, and distribution, manpower, growth of capital, immigration, and emigration were discussed.

Sixteen Latin American countries were represented. In addition, the International Social Science Council provided a fellowship for one qualified junior person to attend the meeting from each of 12 countries, three of which were not otherwise represented.

The director of the seminar was Professor Giorgia Mortara of the Brazilian Institute of Statistics and Geography; its co-director was Jean Bourgeois-Pichat of the UN Bureau of Social Affairs. Among the discussion leaders was Joseph M. Stycos, professor of sociology, St. Lawrence University, Canton, N. Y.

First International VD Symposium

WHO and the Public Health Service have cooperated in planning the First International Symposium on Venereal Diseases and Treponematoses, which will be held in Washington, May 28–June 1, 1956. The American Social Hygiene Association and the American Venereal Disease Association are participating agencies.

Charles A. Smith, M.D., chief of the

venereal disease program in the Special Health Services Division of the Public Health Service, is in charge of arrangements. An attendance of 500 is anticipated.

National Forum on Chronic Illness

The Annual Health Forum of the National Health Council—in 1956 on "Action Today, Tomorrow, Together on Chronic Illness"—will be held March 21 and 22 in the Sheraton-Astor Hotel, New York City. The program is being planned by a 31-member committee of health leaders headed by Theodore G. Klumpp, M.D., president of Winthrop-Stearns and a director of the Commission on Chronic Illness.

Keynote speaker at the opening session Wednesday morning, March 21, will be Leonard W. Mayo, chairman of the Commission on Chronic Illness. At a "Windows to the Future" luncheon that same day Charles I. Schottland, commissioner, Social Security Administration, will speak of national trends and programs likely to have a long-term impact upon the chronic illness situation.

Forum sessions will, in the main, be group presentations reflecting actual experience of specific communities in dealing with chronic illness problems. A finalizer on each program will undertake to project, in both time and geography, the ideas discussed.

The separate half-day sessions as programmed with their subjects, moderators, and finalizers follow:

Wednesday A.M.—The Long-Term Patient at Home—Arnold B. Kurlander, chief, Chronic Disease Program, Public Health Service; and Martin Cherkasky, M.D., director, Montefiore Hospital, New York City

Wednesday P.M.—Patient in an Institution—Cecil G. Sheps, M.D., executive director, Beth Israel Hospital, Boston

Thursday A.M.—Chronic Illness Costs—George Bugbee, president, Health Information Foundation; and C. Rufus Rorem, Ph.D., executive director, Philadelphia Hospital Council

Thursday Luncheon—State Action—Daniel Bergsma, M.D., New Jersey state commissioner of health; and G. D. Carlyle Thompson, M.D., executive officer, Montana State Board of Health

Thursday P.M.—Community Action Together—Charles Brasuell, executive director, Pennsylvania Health Council; and Roscoe P. Kandle, M.D., deputy commissioner of health, New York City

A dinner on Thursday evening will close the forum, but business sessions of the National Health Council's annual meeting (of which the forum is part) will continue through March 23. An evening meeting on the opening day—an innovation this year—will be on rehabilitation and will be moderated by Leona Baumgartner, M.D., commissioner of health, New York City.

Any one wishing to attend the forum may request an advance program from the National Health Council, 1790 Broadway, New York 19, N. Y.

Aid to Medical Schools

The Commonwealth Fund in late November announced grants of $7,150,000 to 10 medical schools to be used in whatever manner the schools wish. The grants were made, according to the announcement, because of the "urgency of the present situation" and "the compelling need for medical schools to clarify their educational objectives." Grants to Harvard and Western Reserve each totaled $1,000,000; to Columbia, Cornell, New York University, Tulane, and Yale, $750,000 each; to Emory University, $600,000; University of Chicago, $500,000; and Southern California, $300,000. The Commonwealth Fund had earlier in the year made grants of $2,000,000 for similar purposes.

At the time of the announcement the American Medical Association, which has its own fund for medical education,

was in session and a bill for federal aid for expansion of medical school facilities was pending in Congress. The National Fund for Medical Education was raising about $2,000,000 annually for medical schools, with $10,000,000 as an annual target.

Within a fortnight of the action of the Commonwealth Fund the Ford Foundation announced a grant of $90,000,000 to strengthen instruction in the 42 privately supported medical schools of the country. On an endowment basis this would provide about $3,600,000 annual income. At the same time, the Ford Foundation provided $200,000,000 to the 3,500 voluntary nonprofit hospitals to improve and extend their services to the public. These allocations were part of a $500,000,000 record grant, the remaining $210,000,000 of which went to raise teachers' salaries in 615 privately supported four-year liberal arts colleges.

Beating the Common Cold

The Common Cold Foundation, organized late in 1954, has made its first progress report covering the period ending November, 1955. Because the common cold is "the most costly cause of employee absenteeism"—amounting to an annual loss of $5,000,000,000—a group of industrial and business concerns established the foundation. Supported currently by 73 firms its purpose is to secure support for research activities in the cause and cure of the common cold.

Its first progress report indicates two research projects being supported, one each at the Johns Hopkins School of Hygiene and Public Health and at the University of Virginia School of Medicine. A library of reference material has been set up, a symposium on the common cold has been co-sponsored with the National Institutes of Health and exhibits have been prepared for meetings of the American Public Health Association and the National Industrial Conference Board.

The officers of the foundation are made up of heads of industrial firms and the industrial medical consultant is William A. Sawyer, M.D. The Medical Advisory Committee includes medical officers of industrial firms, insurance companies, the Public Health Service, and labor health plans. Among them are Drs. Norvin C. Kiefer, Seward E. Miller, Leo Price, William P. Shepard, as well as Drs. G. H. Gehrmann, D. O. Hamblin, Sherman S. Pinto, George M. Saunders, J. F. Shronts, and C. Richard Walmer.

The Scientific Advisory Committee, which advises on research projects, is headed by Yale Kneeland, Jr., M.D., associate professor of medicine, Columbia University, and 13 other members drawn almost exclusively from medical schools. Among them are American Public Health Association Lasker Award winners, Drs. John F. Enders, Thomas Francis, Jr., and Karl F. Meyer, and Sedgwick Award winner, Dr. Wilson G. Smillie, as well as Drs. Harold S. Diehl, John H. Dingle, Alphonse R. Dochez, A. E. Feller, Clayton G. Loosli, Jonas E. Salk, and Thomas B. Turner.

The foundation's headquarters are at 370 Lexington Ave., New York 17, N. Y.

Rheumatic Fever Prevention Study

A pilot study to discover methods for developing effective community programs to prevent rheumatic heart fever is being pioneered by the Heart Association of Southeastern Pennsylvania in cooperation with the American Heart Association. The study, involving nearly 3,000 children in three elementary schools of the Philadelphia area, will be carried on for a year or two. Said to be "the nation's first controlled study of this type," it is hoped to obtain information that will supply a basis for determining the most effective practical

methods for controlling streptococcal infections in a school population.

In addition to the two sponsoring agencies, the study is being supported by the Einstein-Godek Children's Fund of Philadelphia and E. R. Squibb and Sons and Wyeth, pharmaceutical firms, which are also donating penicillin for the program. John P. Hubbard, M.D., professor of preventive medicine, University of Pennsylvania Medical School, is directing the program, assisted by David Cornfeld of the Department of Preventive Medicine and Pediatrics.

Dr. Coggeshall to Department of HEW

On December 30 the White House in Washington announced the nomination on a full-time basis of Lowell T. Coggeshall, M.D., as special assistant for health and medical affairs, Department of Health, Education, and Welfare. Dr. Coggeshall has been serving as dean of the biological sciences, University of Chicago. He was formerly a member of the Rockefeller Foundation staff and served with the Rockefeller Institute in New York City. He is a Fellow of the Epidemiology Section of the APHA.

Cabell-Huntington Health Center

Leonard A. Scheele, Surgeon General of the Public Health Service, spoke at the dedicatory ceremonies for the new Health Center of the Cabell County-Huntington (W.Va.) Health Department on December 14, 1955. In addition to the Health Department, which was formerly quartered in both the Court House and the City Building, the new one-story building will house the Cancer Information Center, the Huntington Heart Association, the Children's Clinic, and the Baby Clinic. Matching funds for use with a Hill-Burton allocation to meet construction costs of more than $250,000 were provided not only by the Cabell County Court and the City of Huntington, but also by the Junior League and the Huntington Heart Association.

Virginia Council's Award

At a luncheon in New York City, November 17, the Virginia Council on Health and Medical Care received the 1954 Lane Bryant Award for community service. The award of $1,000 was given for its medical program, which informs the public of the health problems facing them, works with county groups to improve and understand existing health facilities, and sets up programs to attract young physicians to rural areas. In 1954 more than 300 physicians and 78 communities sought the council's help in "getting together," and 35 physicians moved to Virginia as a result of this service. The council has provided 50 medical scholarships of $1,000 a year which stipulate that a recipient of a grant must practice in a rural area for each year he holds the scholarship. To alleviate the shortage of doctors in rural areas it encourages a program whereby interns from two teaching centers in Virginia spend from two to three months in one of the rural hospitals. Edgar Fisher is director of the council.

Neurological Disability Committee

The National Health Council has established a special Committee on Neurological Disability, whose chairman is Glidden L. Brooks, M.D., medical director of United Cerebral Palsy. The council's Board of Directors took this action following the first "National Conference on Neurological Disability as a National Problem" at Arden House, sponsored by the National Health Council with the support of the United Cerebral Palsy. This three-day conference of 50 of the nation's leading

specialists most directly concerned with various aspects of the problem unanimously recommended continuation of the work started there.

The committee, which planned the Arden House Conference, has been made a permanent group to develop plans for further action as recommended by the conference and to produce and distribute publications from that meeting.

Leonard Mayo, director of the Association for the Aid of Crippled Children, in summarizing the conference described it as "a pattern for meetings on other subjects of common interest to national health agencies." He recommended that a comprehensive program of help be formulated and presented to the American people with a "price tag" of cost involved and benefits expected.

Hugh R. Leavell, M.D., president of the council, was the conference keynoter. The members of Dr. Brooks' committee are:

Maurice Fouracre, Ph.D., head, Department of Special Education, Teachers College, Columbia University

John Gorrell, M.D., director of medical services, National Foundation for Infantile Paralysis

Arthur J. Lesser, M.D., director, Division of Health Service, Children's Bureau

Lawrence J. Linck, secretary, National Society for Crippled Children and adults, with Mr. Mayo

Philip E. Ryan, executive director, National Health Council

New AHA Headquarters Building

Early in November, 1955, ground was broken for a new building to serve as headquarters for the American Hospital Association and as the Center for Hospital Affairs, as well as headquarters for a number of allied groups. Cost of the new building, which is slated for completion by mid-1957, will be nearly five million dollars. The site at Pearson Street and Lake Shore Drive, Chicago, Ill., was made available to the association by Northwestern University.

The director of the association, Edwin L. Crosby, M.D., presided at the ground-breaking ceremonies in which Ray E. Brown, president of the association, and J. Roscoe Miller, Ph.D., president of Northwestern University, also took part.

Public Health Reports Honored

Public Health Reports is one of three medical periodicals to win a 1955 Honor Award for Distinguished Service in Medical Journalism of the American Medical Writers Association. The award for general medical periodicals with a circulation of more than 3,000, consisting of a plaque, was presented at the 12th annual meeting of the association in St. Louis late in September.

Two other awards for specialty medical periodicals and for periodicals of medical societies with memberships of fewer than 500 were won, respectively, by the Archives of Surgery of the American Medical Association and the Sangamon County (Ill.) Medical Society Bulletin.

The awards were established in 1953 to recognize "accuracy, clarity, conciseness, and newness of information in articles, editorials, and other material; for excellence of design, printing and illustrations, and for distinguished service to the medical profession."

Marriage Counseling Materials

The American Institute of Family Relations is prepared to fill requests for "The Practice of Marriage Counseling" from qualified persons—counselors and others, for example, coming in contact with individuals having family and other types of interpersonal problems. This is a paper presented by Paul Popenoe, Sc.D., at the third International Conference on Planned Parent-

hood in Bombay. The institute is also willing to share, on a limited basis, its monthly bulletin, which deals with a variety of family problems. 5287 Sunset Blvd., Los Angeles 27, Calif.

PHS Air Pollution Studies

As a part of the air pollution studies, for which the 83rd Congress made appropriations amounting to nearly two million dollars, the Public Health Service has made contracts with three federal agencies for certain research studies.

The Weather Bureau will study the dilution and contaminants in the atmosphere and will develop survey technics, as well as evaluate existing weather data and investigate methods of predicting weather conditions that may aggravate air pollution. The National Bureau of Standards will develop methods of identifying various gaseous combinations and study methods of determining atmospheric content of common pollutants, such as carbon monoxide and total oxidants, explore methods of analyzing atmosphere samples, and studying reactions in the air between gases and chemicals.

The Bureau of Mines will study incineration of wastes, evaluate air pollution elements in internal combustion of engines, and stack effluents. Allocations for the studies by these three agencies amount to about one-fifth of the congressional appropriation for the year.

700 Medical Social Workers Trained

A total of 56 students are completing their education in medical social work with the help of scholarships awarded by the National Foundation for Infantile Paralysis during the current year. The scholarship recipients, who are residents of 24 states, are studying in 19 schools of social work that offer an approved curriculum in medical social work. The total number of medical social work scholarships awarded by the National Foundation since 1944 is now 681 for which almost one million dollars has been authorized to date.

At the same time, 162 students from 34 states are studying in 25 approved schools of physical therapy with the aid of foundation scholarships. Since these were first awarded in 1942, almost three million dollars has been appropriated for 2,365 physical therapy scholarships. For all of its various scholarship programs, the foundation has appropriated since 1938 nearly 22 million dollars for 5,334 scholarships.

Physicians in the Army Upgraded

Promotion policies of the U. S. Army Medical Corps have been revised to make temporary promotion of physicians to the grade of major, lieutenant colonel, and colonel one year sooner than other Army officers. As a result, it is estimated that 390 medical officers will be promoted to higher grades during the period ending June 30, 1956. It is also expected that it will serve as a means of attracting career officers into the Army. The Department of the Army has also completed recommendations calling for initial commissioning as captains for medical officers. These actions give additional recognition to the long and expensive training required of doctors before they can qualify for Army commissions.

Dental Case History Service

The American Institute of Dental Medicine announces that it will continue to offer case histories from the broad field of dental medicine for the year 1955–1956, a service begun in 1953. Included are original 35 mm Kodachrome slides of the oral condition, pertinent laboratory findings, medical background, roentgenograms,

histologic slides, photomicrographs, diagnostic criteria, and whatever else may be indicated in each individual case. A loose-leaf binder and matching Kodachrome slide box will be furnished each participant.

During the three years of the institute's history, it has provided 250 members with 38 practical and useful histories with 75 Kodachrome slides and valuable up-to-date information.

Subscription to the Case History Service entitles the user to full membership in the American Institute of Dental Medicine, for which members of the ADA or AMA, or their foreign equivalent, are eligible.

Further information from Mrs. C. Novembri, Secretary, American Institute of Dental Medicine, 2240 Channing Way, Berkeley 4, Calif.

Scientific Equipment Catalog

The new 1956 Hellige Catalog No. 60, of scientific instruments, laboratory glassware, reagents, and specialties for medicine, industry, and public health is now available. Hellige also has a technical service which invites inquiries regarding new processes, methods, or apparatus. Technical advice is supplied without obligation. Hellige, Inc., 877 Stewart Ave., Garden City, N. Y.

New York Radiation Exposure Rules

Two sets of regulations, directed at the protection of workers most likely to be exposed to hazardous radiation emanations, have recently been adopted respectively, by the New York State Department of Labor and the Department of Health. Industrial Code Rule No. 38 covers approximately 150,000 workers employed in industries where exposure to the effects of industrial radiation is possible. "This is the first comprehensive state safety code in this field, and New York is the first in the nation to have a code which is in complete conformity with A.E.C. safety regulations."

The state's Sanitary Code of the Health Department covers the protection of personnel in hospitals, dental offices, and similar establishments. Significant provisions are found in the sections on registration, control of exposure, dose limits, installation surveys, keeping of records, personnel monitoring, and caution labels and signs. The two codes complement each other to cover most peacetime uses of radiation.

ADA Annual Meeting

At the 96th annual meeting of the American Dental Association in San Francisco in October, Bernerd C. Kingsbury, D.D.S., of San Francisco, succeeded Daniel F. Lynch, D.D.S., of Washington, D. C., as president. Harry Lyons, D.D.S., dean, School of Dentistry, Medical College of Virginia was named president-elect.

The House of Delegates which for six years has opposed inclusion of dentists in the Old Age and Survivor's Insurance program of the federal Social Security Act, voted in favor of voluntary coverage. The delegates also called for the establishment of a Federal Council of Health as recommended by the Medical Task Force of the Hoover Commission. Opposition to President Eisenhower's federal reinsurance program was voted, as well as to a compulsory system of vocational rehabilitation for disabled persons 50 years of age or older covered by OASI. A revised statement of principles for determining the acceptability of dental prepayment plans was approved.

Three New Dental Board Diplomates

The American Board of Dental Public Health announces that its next certifying examination will be given in Atlan-

tic City, September 27 and 28, 1956, in connection with the 97th annual meeting of the American Dental Association. Applications must be submitted to the secretary of the board not later than May 31, 1956.

As a result of the examination given at the October, 1955, meeting in Berkeley, three persons were certified as Diplomates of the Board. The following officers were elected:

President—William A. Jordan, D.D.S.
Vice-President-Auditor—John W. Knutson, D.D.S.
Secretary-Treasurer—Philip E. Blackerby, Jr., D.D.S., 250 Champion St., Battle Creek, Mich.

Russians Study U. S. Polio Methods

By arrangement with the Public Health Service, at the request of the Department of State, four scientists from the Academy of Medical Sciences of the United States of Soviet Russia were recently in the United States for four weeks to study methods of treatment of poliomyelitis and the preparation of the Salk vaccine. Under the leadership of Dr. Alexis I. Shelokov, virologist of the National Institutes of Health, they visited installations in seven cities, including Pittsburgh where they visited the Municipal Hospital and met with Dr. Jonas Salk.

Scheduled visits were made to the National Institutes of Health, Johns Hopkins University, Children's Hospital in Boston, Yale University Medical School in New Haven, the University of Minnesota Medical School, and the Children's Hospital Research Foundation in Cincinnati.

PERSONALS

WILL H. AUFRANC, M.D., M.P.H.,* former chief, General Health Services, has succeeded R. A. VONDERLEHR, M.D.,* retired, as regional medical director, Atlanta, Ga., Regional Office of the Public Health Service.

CLYDE M. BERRY, Ph.D.,* former industrial hygienist, Esso Standard Oil Company, is now associate director, Institute of Agricultural Medicine, College of Medicine, State University of Iowa, Iowa City.

FRANK A. CALDERONE, M.D.,* is president of the Occupational Health Institute, New York City, an educational activity of the Industrial Medical Association.

NORTON G. CHAUCER, M.D.,† former deputy director, Hartford (Conn.) Health Department, is now director of health, Fairfield.

WILLIAM Y. CHEN, M.D., M.P.H.,† is the new director of health, Middletown, Conn., succeeding JOHN J. KORAN, M.D., former acting director.

STANLEY COOPERMAN of the Information Service Department, National Society for the Prevention of Blindness, has resigned to accept a teaching fellowship at Indiana University, Bloomington.

HUBERT D. CROW, M.D.,† former health director, Fredericksburg, has been appointed director of the Virginia State Health Department's new Medical Training Section, and also health director for Suffolk and the Counties of Isle of Wight, Southampton, and Nansemond, with headquarters in Suffolk. In the latter post, he succeeds WILLIAM H. MICHAEL, M.D., retired.

ELLEN M. J. DEGN, R.N., nurse in the public schools of Esbjerg, Denmark, and international exchange trainee of the American Nurses' Association, is on active duty in the Racine (Wis.) Health Department, having previously spent six months in pediatric nursing at Milwaukee Children's Hospital.

JOHN V. DESHAY, M.D., has been appointed health officer of the Thurston-Mason Counties Health District, Washington State, with headquarters in Olympia.

SIDNEY FARBER, M.D., professor of pathology, Harvard Medical School, Boston, Mass., has been named life chairman of the United Cerebral Palsy Research Advisory Board.

PATRICIA L. FUEHRER, the first woman to be appointed to the Bureau of Sanitary Engineering, is junior sanitary engineer in the Office of Region IV, Pennsylvania State Department of Health, Greensburg.

ALLEN O. GAMBLE, former director, recruitment, examination, training, and performance reporting programs, National Advisory Committee for Aeronautics, has been appointed project director, National Register of Scientific and Technical Personnel, National Science Foundation, Washington, D. C.

* Fellow.
† Member.

WARFIELD GARSON, M.D., M.P.H.,* chief, Venereal Disease Control Section, North Carolina State Board of Health, has been appointed also professor and head, of the Department of Experimental Medicine, School of Public Health, University of North Carolina and director, Venereal Disease Experimental Laboratory of the Public Health Service in Chapel Hill, in which position he succeeds HAROLD J. MAGNUSON, M.D., M.P.H.,* now chief, Operational Research Section, Venereal Disease Program, Public Health Service, Washington, D. C.

IRVING GORDON, M.D.,* assistant director, Division of Laboratories and Research, New York State Department of Health, has resigned to become professor and chairman, Department of Medical Microbiology, University of Southern California Medical School, Los Angeles.

IRA V. HISCOCK, Sc.D.,* was honored with a testimonial luncheon at the fall meeting of the New England Health Education Association in Boston, Mass., December 2.

JOHN HOVE,† health program representative, U. S. Public Health Service, formerly assigned to the Missouri Department of Health, has been assigned to the Bureau of Veneral Disease Control, New Jersey Department of Health, Trenton, succeeding WILLIAM PAGE, who has been transferred to the Chicago Regional Office of the PHS.

MARY ESTELLE INGOLDSBY, R.N.,† former industrial nursing consultant, West Virginia Department of Health, is now administrative supervisor, Visiting Nurse Association, Corning, N. Y.

ROGER JAMES,† senior sanitary engineer, and SAM REED,† sanitation training supervisor, Washington State Department of Health, are on a year's leave for study at the University of California.

OLIVE G. JOHNSON,† formerly chief medical record librarian, Clinical Center, National Institutes of Health, has been appointed medical record librarian-in-chief, Health Center, University of Pittsburgh, and research associate, Graduate School of Public Health, University of Pittsburgh.

ELEANOR KELTON, formerly at University of Michigan Medical Center at Ann Arbor, is now a senior physical therapist, Division of Crippled Children, Connecticut State Department of Health, Hartford, succeeding BARBARA WHITE, resigned.

HENRY H. KESSLER, M.D.,* medical director, Kessler Institute for Rehabilitation, West Orange, N. J., is on a six-week assignment for the United Nations Technical Assistance Administration to advise with the Philippine government on its needs in the field of rehabilitation services.

COLONEL DWIGHT M. KUHNS, MC, U. S. Army,* former chief, Pathology and Allied Sciences Division, Office of the Surgeon General, has been named army deputy director of the Armed Forces Institute of Pathology, Washington, D. C.

MARVIN M. LEEDS, M.S.P.H.,† former health educator, Health Insurance Plan of Greater New York, has been appointed administrator of the East Nassau Medical Group, a new medical group, Hicksville, N. Y., affiliated with the Health Insurance Plan.

ROBERT W. MACCALLMONT, M.D., has been appointed the first full-time director of health, Westport, Conn.

EMMA MCLEAN,† administrative assistant, Brooklyn (N. Y.) Tuberculosis and Health Association, on November 28, 1955, received a corsage and congratulations from Edward T. Fagan, treasurer of the Brooklyn association and president of the National Tuberculosis Association, on the anniversary of her 35 years of service with the organization, "with service and loyalty above and beyond the ordinary call of duty."

HOWARD E. MOSES, director, Bureau of Sanitary Engineering, Pennsylvania State Department of Health, Harrisburg, was given the Award of Merit of the Pennsylvania Public Health Association at its 1955 annual meeting at State College.

SOPHIE CAROLINE NELSON, R.N.,* of Newton, retired director, Visiting Nurse Service, John Hancock Mutual Life Insurance Company, Boston, Mass., was presented the Shattuck Award for "distinguished service in public health in New England" at a recent meeting of the Massachusetts Public Health Association in Worcester.

ALTON S. POPE, M.D.,* retired deputy commissioner, Massachusetts State Health Department, Boston, has rejoined the department to direct a study supported by the National Foundation for Infantile Paralysis to gather further evidence regarding the value of polio vaccine in preventing the paralytic form of the disease.

F. M. POTTENGER, M.D.,† founder and medical director of the Pottenger Sanatorium and Clinic for Diseases of the Chest, Monrovia, Calif., has been honored for his work by the Trudeau Society of Los Angeles which designated the evening of December 14 as "Pottenger" night.

---

* Fellow.
† Member.

WILLIAM E. REYNOLDS, M.D.,† has been appointed executive officer, Department of Public Health and Preventive Medicine, School of Medicine, University of Washington, Seattle.

A. B. RICH, D.V.M., former laboratory director, San Antonio Health Department, has been appointed to head the new Division of Veterinary Public Health, Texas State Department of Health, Austin.

IRVING I. RIMER, former public information director for both the Pennsylvania Citizens Association and Pennsylvania Mental Health, Inc., has succeeded VIRGINIA BECKER† as executive director, National Publicity Council for Health and Welfare Services, New York City.

EARL W. ROTHERMEL, M.D., has succeeded MERRIL B. DEWIRE, M.D., as medical director, Berks County, Pennsylvania State Department of Health.

CONSTANCE ROY, R.N.,* of Moorestown, former instructor in public health nursing, New York State Medical College, Syracuse University, is public health nurse director of the newly organized combination Burlington County Public Health Nursing Association, Mt. Holly, N. J.

BENTON V. D. SCOTT, M.D., M.P.H.,* former health officer, Alexander-Catawba-Lincoln Counties, N. C., is now health commissioner of FAYETTE, ROSS, and PIKE Counties, Ohio, with headquarters in Chillicothe.

JOSEPH E. SMADEL, M.D.,* former scientific director, Department of Virus and Rickettsial Diseases, Army Medical Center, has transferred to the National Institutes of Health as associate director in charge of intramural research.

RAY TAYLOR, former health education director, Sangamon County (Ill.) Tuberculosis Association, is now health education consultant, Iowa Tuberculosis and Health Association, Des Moines.

MARY ELIZABETH TENNANT, R.N., M.P.H.,* assistant director, Division of Medical Education and Public Health, Rockefeller Foundation, has retired and is now associate professor of public health nursing, Yale University, New Haven, Conn.

LESLIE T. WEBSTER, JR., M.D., demonstrator in medicine, Western Reserve University School of Medicine, Cleveland, has won the second National Vitamin Foundation-Russell M. Wilder Fellowship of the National Vitamin Foundation to continue his studies of the metabolism of protein, amino acids, and ammonium in patients with and without liver disease.

JAMES L. WHITTENBERGER, M.D.,† professor of physiology, has been named assistant dean, Faculty of Public Health, Harvard University, Boston, Mass., to share the administrative responsibilities of the assistant deanship with HUGH R. LEAVELL, M.D.,* an assistant dean since July, 1954.

CARL J. WIGGERS, M.D., professor emeritus and former physiology department head, Western Reserve Medical School, Cleveland, Ohio, and editor, Circulation Research, was presented the 1955 Albert Lasker Award of the American Heart Association for distinguished achievement in the field of cardiovascular diseases at the association's scientific sessions in New Orleans on October 22 for his contributions in the fields of research, teaching, and clinical medicine.

DEATHS

CLAYTON C. BENJAMIN, M.D., M.S.P.H.,* director, St. Clair County (Mich.) Health Department on October 20, 1955 (Health Officers Section).

HAINAN C. BUSBY, M.D.,† director, Maury County (Tenn.) Health Department in 1954 (Health Officers Section).

GRACE COOK, R.R.L.,† chief medical record librarian and medical statistician, Quain and Ramstad Clinic, Bismarck, N. D. (Statistics Section).

E. ELDO EWBANK, D.D.S.,† secretary-manager of the Indiana State Central Association. Dr. Ewbank lived in Kingman, Ind. (Dental Health Section).

ANN LUISE FINCH,* director of nursing, Los Angles (Calif.) County Health Department (Public Health Nursing Section).

RUTH W. HUBBARD, R.N.,* general director, Visiting Nurse Society of Philadelphia, Pa., and a member of the Editorial Board of the American Journal of Public Health (Public Health Nursing Section).

D. BREESE JONES, Ph.D.,† of Washington, D. C., on September 5, 1955 (Food and Nutrition Section).

FLORA KOVALSKY,† executive director, Boston Association for Retarded Children, October 27, 1955 (Public Health Education Section).

HARRY LINDQUIST,† assistant professor, Department of Dairy Industry, Massachusetts State College, Amherst, Mass. (Food and Nutrition Section).

* Fellow.
† Member.

HOWARD W. LUNDY, Dr.P.H.,* scientific director, Muscular Dystrophy Association of America, New York, N. Y., suddenly on December 21 (Public Health Education Section).

DALE L. MAFFITT,† general manager, Des Moines Water Works, Des Moines, Iowa (Statistics Section).

WALTER J. MARCLEY, M.D.,† of Minneapolis, Minn. (Epidemiology Section).

JOHN E. NOBLE † of Washington, D. C. (Laboratory Section).

LEON B. REYNOLDS, D.Sc.,† professor of hydraulic and sanitary engineering, acting executive, Civil Engineering Department, Stanford University, Palo Alto, Calif., on September 26, 1955 (Engineering and Sanitation Section).

DAVID L. SEGAL,† food and market inspector, San Diego (Calif.) Health Department (Engineering and Sanitation Section).

LEE A. STONE, M.D.,* Madera County (Calif.) health officer on November 5, 1955 (Health Officers Section).

R. A. THARP, M.D.,† director, DeSoto (La.) Parish Health Unit on October 2, 1955 (Health Officers Section).

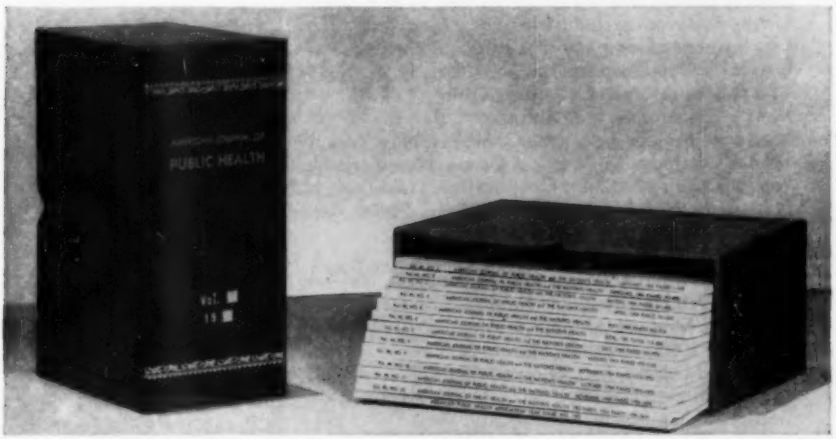
* Fellow.
† Member.

from Lederle
the first practical
MUMPS VACCINE

An effective immunizing antigen for prevention of mumps in children or adults where indicated. Immunizes for about one year.

Packages: 2 cc. vial (1 immunization)
10 cc. vial (5 immunizations)

LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY PEARL RIVER, NEW YORK



Preserve your JOURNALS
with this *Jesse Jones*
Volume File

Specially designed and produced for the American Journal of Public Health, this file will keep one volume, or 12 issues, clean, orderly and readily accessible. Picture this distinctive, sturdy Volume File on your book shelf. Its rich red and green Kiver cover looks and feels like leather, and the 16-carat gold leaf hot-embossed lettering makes it a fit companion for your finest bindings.

The Volume File is reasonably priced, in spite of its costly appearance. It is sent postpaid, (except in Canada and in foreign countries) carefully packed, for $2.50 each. Most members will find it more convenient and economical to order 3 for $7.00 or 6 for $13.00. Satisfaction guaranteed. For prompt shipment, order direct from the:

American Public Health Association
1790 Broadway, New York 19, N. Y.

The American Public Health Association acknowledges with deep appreciation its indebtedness to these Sustaining Members whose annual dues help support its general program

Sustaining Members

Amalgamated Laundry Workers Health Center, Inc., New York, N. Y.
Amalgamated Meat Cutters and Butcher Workmen of North America, Chicago, Ill.
American Aerovap, Inc., New York, N. Y.
American Association of Medical Social Workers, Washington, D. C.
American Bottlers of Carbonated Beverages, Washington, D. C.
American Can Company, New York, N. Y.
Association for the Aid of Crippled Children, New York, N. Y.
George Baehr, M.D., New York, N. Y.
Borden Company, New York, N. Y.
Chicago Office, Theatre, and Amusement Building Janitors' Union, Local 25, Chicago, Ill.
Chlorine Institute, Inc., New York, N. Y.
Congress of Industrial Organizations, Washington, D. C.
Difco Laboratories, Detroit, Mich.
Diversey Corporation, Chicago, Ill.
Equitable Life Assurance Society of the United States, New York, N. Y.
Grand Concourse Medical Group, New York, N. Y.
Hellige, Inc., Garden City, N. Y.
Hoffmann-La Roche, Inc., Nutley, N. J.
International Association of Ice Cream Manufacturers, Washington, D. C.
International Association of Machinists, Washington, D. C.
International Equipment Company, Boston, Mass.
John Hancock Mutual Life Insurance Company, Boston, Mass.
Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.
Liberty Mutual Insurance Companies, Boston, Mass.
Licensed Beverage Industries, Inc., New York, N. Y.
Life Insurance Company of Virginia, Richmond, Va.
Lily-Tulip Cup Corporation, New York, N. Y.
M & R Laboratories, Columbus, Ohio
Merck & Company, Inc., Rahway, N. J.
Metropolitan Life Insurance Company, New York, N. Y.
Montefiore Hospital Medical Group, New York, N. Y.
National Dairy Products Corporation, New York, N. Y.
New York Hotel Trades Council and Hotel Association Health Center, Inc., New York, N. Y.
Oval Wood Dish Corp., Tupper Lake, N. Y.
Prudential Insurance Company of America, Newark, N. J.
Rip Van Winkle Clinic, Hudson, N. Y.
Ross-Loos Medical Group, Los Angeles, Calif.
Sealright Company, Inc., Fulton, N. Y.
Sharp and Dohme, Inc., Glenolden, Pa.
Sidney Hillman Health Center, New York, N. Y.
Sodiphene Company, Kansas City, Mo.
E. R. Squibb and Sons, New York, N. Y.
Steiner Sales Company, Chicago, Ill.
Sun Life Insurance Company, Baltimore, Md.
Travelers Insurance Company, Hartford, Conn.
UAW-CIO (United Automobile, Aircraft and Agricultural Implement Workers of America), Detroit, Mich.
Union Central Life Insurance Company, Cincinnati, Ohio
Upjohn Company, Kalamazoo, Mich.
Velsicol Corporation, Chicago, Ill.
Winthrop-Stearns, Inc., New York, N. Y.
Wyeth Laboratories, Inc., Philadelphia, Pa.

We printed one of these new Corning Laboratory Glassware Catalogs for you

Here's how to get your free copy

The printer has done his part. Now we want to do ours by making sure *you* get your free copy.

If you own an earlier edition of this scientific glassware atlas, we need not entice you into sending for this one. You know from experience that it will cover hundreds of useful glassware items made in one or more of three Corning glasses. You'll find in the very complete index everything from "Absorption Bulbs" to "Wool, Glass Fibre."

If you've missed out on earlier editions, we suggest you be sure to get this new one. You'll find all the information you need to order the item or items you're interested in.

It's a valuable book to own. Simply fill in the coupon below and send it to us. We'll have your copy in your laboratory in short order. Mail it today.

PYREX® laboratory ware

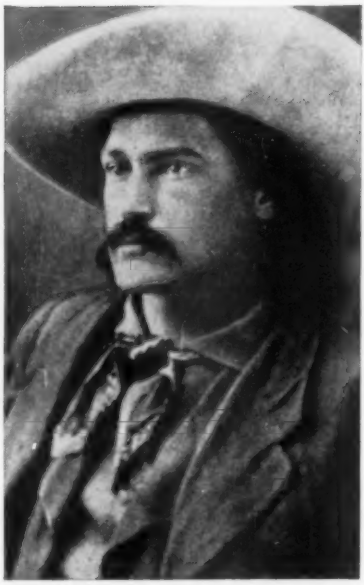
. . . the tested tool of modern research

Corning means research in Glass

CORNING GLASS WORKS
80-2 Crystal Street, Corning, New York
Please send me your new catalog LP-36: "Laboratory Glassware."

Name.....Title.....
Company.....
Street.....
City.....Zone.....State.....

His calling card had claws on it



LUTHER KELLY lied about his age and got into the army at 15. They sent him West in 1865, and he stayed.

He liked the wilderness. Game abounded. In Trappers' Lake, "trout were so thick they obscured the bottom." He learned Sioux and sign language, read Shakespeare and Scott.

One day, he visited General Miles, sending a huge fierce-clawed bear's paw to Miles as his calling card. Miles made him chief scout.

By 1885, the country was taming down, and Yellowstone Kelly left it.

Two decades later, Teddy Roosevelt praised the heroic treasurer of Surigao in the Philippines who saved the town from outlaws. Name: Luther S. Kelly.

Yellowstone Kelly's body now rests at Kelly Mountain in Montana. But his pioneering spirit lives on in today's America. For it is the trail-blazing courage of 165 million people that makes America great and provides the real strength behind one of the world's finest investments: U. S. Savings Bonds.

Why not guard your security with this strength? Invest in U. S. Series E Bonds. And hold on to them!

It's actually easy to save money—when you buy United States Series E Savings Bonds through the automatic Payroll Savings Plan where you work! You just sign an application at your pay office; after that your saving is done *for* you. The Bonds you receive will pay you interest at the rate of 3% per year, compounded semiannually, when held to maturity. And *after* maturity they go on earning 10 years *more*. Join the Plan today.

Safe as America—
U.S. Savings Bonds

The U.S. Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

AMERICAN PUBLIC HEALTH ASSOCIATION, Inc.

1790 Broadway at 58th Street New York 19, N. Y.

Publications of the A.P.H.A.

AMERICAN JOURNAL OF PUBLIC HEALTH AND THE NATIONS HEALTH. Single copies..... $1.00
A. P. H. A. YEAR BOOKS..... $1.50
AN APPRAISAL METHOD FOR MEASURING THE QUALITY OF HOUSING: A YARDSTICK FOR HEALTH OFFICERS, HOUSING OFFICIALS AND PLANNERS: PART I. NATURE AND USES OF THE METHOD. (1945). 71 pp..... $1.00
PART II. APPRAISAL OF DWELLING CONDITIONS. VOL. A—DIRECTOR'S MANUAL, $3.00. VOL. B—FIELD PROCEDURES, $2.00. VOL. C—OFFICE PROCEDURES, $2.00 (1946); or three for $6.00
PART III. APPRAISAL OF NEIGHBORHOOD ENVIRONMENT. (1950). 132 pp..... $3.00
BASIC PRINCIPLES OF HEALTHFUL HOUSING. 2d ed. reprinted 1950. 34 pp..... .50
CARE OF LABORATORY ANIMALS. 1954. 32 pp... .75
CONTROL OF COMMUNICABLE DISEASES IN MAN. 8th ed. 1955. 212 pp..... .60
DIAGNOSTIC PROCEDURES AND REAGENTS. TECHNICS FOR THE LABORATORY DIAGNOSIS AND CONTROL OF THE COMMUNICABLE DISEASES. 3rd ed., 1950. 589 pp..... $6.00
DIAGNOSTIC PROCEDURES FOR VIRUS AND RICKETTSIAL DISEASES. 1948. 347 pp..... $4.50
DIRECTORY OF PUBLIC HEALTH STATISTICIANS (5th ed.) 1953. 48 pp..... $1.00
EVALUATION SCHEDULE. For use in the study and appraisal of community health programs..... .70
GENERAL MEDICAL CARE PROGRAMS IN LOCAL HEALTH DEPARTMENTS. Milton Terris and Nathan Kramer. 1951. 129 pp..... .60
GUIDE FOR THE MEDICAL AND PUBLIC HEALTH NURSING SUPERVISION OF TUBERCULOSIS CASES AND CONTACTS. 1953. 24 pp..... .30
GUIDE TO A COMMUNITY HEALTH STUDY. Revised 1955. 64 pp..... $1.00
GUIDES TO SERVICES FOR HANDICAPPED CHILDREN:
CEREBRAL PALSY. 108 pp..... $1.50
CLEFT LIP AND CLEFT PALATE—88 pp..... $1.50
DENTO-FACIAL HANDICAPS—80 pp..... $1.50
HANDICAPPED CHILDREN—150 pp..... $1.50
Sets, Consisting of the 4 Guides..... $5.10
HEALTH PRACTICE INDICES 1947–1948. A Collection of charts showing the range of accomplishments in various fields of community health service. 90 pp..... $1.00
HEALTH SUPERVISION OF YOUNG CHILDREN. 180 pp. $2.00
HOUSING AN AGING POPULATION. 1953. 92 pp. $1.00
METHODS FOR DETERMINING LEAD IN AIR AND IN BIOLOGICAL MATERIALS. 2nd ed. 1955. 69 pp. $1.25
NUTRITION PRACTICES: A GUIDE FOR PUBLIC HEALTH ADMINISTRATORS. 80 pp..... $1.00
OCCUPATIONAL LEAD EXPOSURE AND LEAD POISONING. 1943. 67 pp..... .50
PANUM ON MEASLES. By P. L. Panum (Translation from the Danish). Delta Omega ed., 1940. 111 pp. $2.50
PROPOSED HOUSING ORDINANCE 1952. 24 pp..... .75
PROPOSED SANITARY CODE. Part III of a Study of Sanitation Services..... $2.50
PUBLIC HEALTH CAREER PAMPHLETS:
PUBLIC HEALTH—A Career with a Future. Revised edition, 1954..... .25
INDUSTRIAL HYGIENE 1949 / THE ENGR. AND SANITARIAN 1949 / STATISTICIAN 1955 — 1–5 copies free; 6–99 copies ea. 10¢
SELECTED PAPERS OF HAVEN EMERSON. 1949. 507 pp..... $3.00
"SHATTUCK REPORT", THE. Report of the Sanitary Commission of Massachusetts: 1850. 321 pp... $4.50
STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS. 10th ed., 1953. 345 pp..... $4.75
MICROBIOLOGICAL EXAMINATION OF MILK AND CREAM: Chapter 2 Only. 64 pp..... .75
PHOTOGRAPHIC SEDIMENT CHART..... $1.50
STANDARDS FOR HEALTHFUL HOUSING:
PLANNING THE NEIGHBORHOOD. 1948. 89 pp... $2.50
PLANNING THE HOME FOR OCCUPANCY. 1950. 90 pp. $2.50
CONSTRUCTION AND EQUIPMENT OF THE HOME. 1951. 78 pp..... $2.50
The set, handsomely boxed..... $7.50
STANDARD METHODS FOR THE EXAMINATION OF WATER, SEWAGE AND INDUSTRIAL WASTES. 10th ed. 1955. 522 pp..... $7.50
Special price to members of A.P.H.A., A.W.W.A., & F.S.I.W.A. on prepaid orders only for a single copy..... $6.50
SWIMMING POOLS AND OTHER PUBLIC BATHING PLACES. Recommended Practice for Design, Equipment and Operation of, 1949. 56 pp..... .55
35 YEAR INDEX OF THE AMERICAN JOURNAL OF PUBLIC HEALTH. Years 1911 to 1945. 340 pp. Buckram ed. $7.00. Paper ed..... $3.75
WHAT'S THE SCORE? Committee on Administrative Practice. A.P.H.A. 1950. 52 pp..... .50

Order from the Book Service — Advance Payment is Requested

Reprints from the American Journal of Public Health

BACTERIAL CLEANABILITY OF VARIOUS TYPES OF EATING SURFACES. [February, 1953.] 12 pp. 25¢.
BIBLIOGRAPHY OF PUBLIC HEALTH MOTION PICTURES AND FILM STRIPS. [April, 1950.] 4 pp. 15¢.
BOOKSHELF ON FOODS AND NUTRITION. [April, 1955.] 12 pp. 25¢.
CONGRESSIONAL HEARINGS ON WATER-BORNE FLUORIDES. [May, 1952.] 5 pp. 15¢.
FINANCING LOCAL HEALTH SERVICES. Symposium [August, 1955.] 15¢. or $10.00 per 100
IMPROVEMENT OF LOCAL HOUSING REGULATION UNDER THE LAW. [November, 1942.] 16 pp. 25¢.
LEMUEL SHATTUCK—STILL A PROPHET. [February, 1949.] 27 pp. 25¢.
THE LOCAL HEALTH DEPARTMENT—SERVICES AND RESPONSIBILITIES. An official statement of the American Public Health Association. [1950.] 8 pp. 10¢.
ON THE USE OF SAMPLING IN THE FIELD OF PUBLIC HEALTH. [June, 1954.] 24 pp. 40¢.
PRESENT STATUS OF THE CONTROL OF AIR-BORNE INFECTIONS. [January, 1947.] Report of the Subcommittee for the Evaluation of Methods and Control of Air-Borne Infections. 10 pp. 25¢.
PRINCIPLES FOR CONSIDERATION IN JUDGING THE PROBABLE EFFECTIVENESS OF FEDERAL LEGISLATION DESIGNED TO IMPROVE THE HEALTH OF CHILDREN OF SCHOOL AGE. [April, 1948.] 4 pp. 10¢.
RECENT OBSERVATIONS OF THE BRITISH NATIONAL HEALTH SERVICE. [May, 1949.] 6 pp. 15¢.
STATE HEALTH DEPARTMENT—SERVICES AND RESPONSIBILITIES. [February, 1954.] 20 pp. 35¢.
VENTILATION AND ATMOSPHERIC POLLUTION. [July, 1943.] 7 pp. 15¢.
VIABILITY OF *Escherichia coli* IN ACID MINE WATERS. [July, 1952.] 5 pp. 10¢.

Order from the Book Service — Advance Payment is Requested

NOW AN AMAZING 3 WAY PLAN

That Keeps Public Washrooms SAFER · CLEANER · MORE SANITARY

There's a way to keep washrooms looking neater, cleaner than ever before.

More than that, there's a way to keep them safer, more sanitary!

Thousands of Public Health Authorities will tell you how our 3 Way Plan has helped wipe out the menace of dangerous and needless unsanitary public washroom practices.

Sanitary Disposable Paper Towels

Dispensed through an automatic towel dispenser that eliminates waste without restricting use—Reduces towel litter to a minimum. Dispenser, containing 500 towels, reduces possibility of empty containers and insures adequate supplies at all times, yet is the most economical method of dispensing paper towels. So economical anybody can afford to keep a clean washroom!

Self-Reloading Tissue Dispenser

The greatest problem in public washrooms with toilet tissue is adequate maintenance of supply. This dispenser, automatically reloading its extra roll when the first roll is consumed, insures an adequate supply, even in such places where daily inspection is impossible, or impractical. Dispenser need not be checked more than once a week and sometimes not even that frequently, yet an adequate supply of soft, strong quality toilet tissue is always available.

Soapmaster Dispenser

A safe, sanitary dispenser of DRY soap. User just turns the handle, and a fine dry soap powder falls into his hand. No messy "soap dish". . . no dripping liquid . . . no clogged dispensers.

The 3 Way Plan has been enthusiastically received by sanitary experts and consumers across the nation.

For complete information . . .

Steiner SALES COMPANY

740 Rush Street, Chicago 11, Ill.

Why Over 3,500 TB Case-Finding Projects Annually Use POWERS X-RAY SERVICE

- **POWERS SERVICE IS COMPLETE!** Powers relieves project sponsors of *all* technical problems. Our experienced technicians work to the sponsor's schedule, with units able to take as many as 200 chest x-rays an hour. We deliver fully processed x-rays, with a viewer, to sponsor's roentgenologist.
- **LOWER IN COST!** The large volume of x-rays Powers handles nationally enables us to cut overhead costs to a minimum for each individual project.
- **EFFICIENT!** Our 20 years of experience in chest x-ray surveys from Maine to Texas have taught us to do the job quickly and effectively under many diverse conditions.
- **FLEXIBLE!** According to the sponsor's requirements, Powers offers either the full-size roll paper method or the 70 mm photofluorographic method—and operates either portable units or mobile units with generators.

Reg. T.M. POWERS X-RAY PRODUCTS

Our technical advisory service is available without obligation. Write before you plan a TB Case-Finding Project!

POWERS X-RAY PRODUCTS, INC.

Group Radiography

GLEN COVE, LONG ISLAND, N. Y.

Case

MULTIDISKS

More Economical More Accurate
For Tests of Bacterial Sensitivity to
Antibiotics—Sulfonamides
Other Chemotherapeutic Agents

Simple to Use—Just place 1 six-tipped MULTIDISK in a petri dish—takes 1/6 the time.

Labor Saving—Fewer jars and bottles to handle. Less inventory and record keeping.

Less Contamination—The cover of the petri dish need only be lifted once instead of 3 to 6 times.

Uniformity—Moisture on agar surface is less likely to affect relative size of the zones of inhibition since all tips of a MULTIDISK are part of same piece of paper.

Clinically Accurate—Numerous investigators have demonstrated "good correlation between laboratory determination and the clinical course of the patient." [1, 2, 3, 4]

[1] Antibiotics & Chemotherapy, Vol. IV, No. 9, Sept, 1954
[2] Antibiotics & Chemotherapy, Vol. III, 409, 1953
[3] Antibiotics & Chemotherapy, Vol. II, 30, 1952
[4] Nebraska M.J., 37:251, 1952.

MULTIDISKS are available in 3, 4, 5, 6, 7, 8, and 9 tipped disks. Special MULTIDISKS on order at slightly higher price.

Send for brochure describing MULTIDISKS and method of using this new sensitivity test.

CASE LABORATORIES
Bacteriological Culture Media
515 N. Halsted Street Chicago 22, Illinois

AMERICAN PUBLIC HEALTH ASSOCIATION, Inc.
1790 Broadway New York 19, N. Y.

APPLICATION FOR MEMBERSHIP

(*Please type or print*)

NAME_____

MAILING ADDRESS_____
(street) (city) (zone) (state)

PRESENT POSITION_____
(title) (organization)

BUSINESS ADDRESS_____
(street) (city) (zone) (state)

PRIOR EXPERIENCE_____
(title) (organization) (city and state) (dates)

PLACE AND DATE OF BIRTH_____

EDUCATION (schools, dates, degrees if any)

PROFESSIONAL SOCIETY MEMBERSHIPS_____

Please complete application on reverse side

BBL

Announces

SENSI-DISCS

Antimicrobial Discs

50 discs per vial

for the

Reliable, Convenient and Rapid

DETERMINATION OF MICROBIAL SENSITIVITY

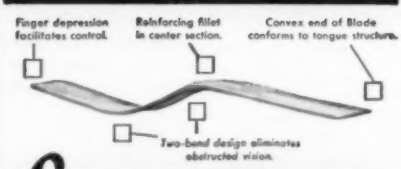
to

Antibiotics, Sulfonamides
and other
Antimicrobial Agents

Write for Folder SD-08

Baltimore Biological Laboratory
INCORPORATED
A Division of Becton, Dickinson & Co.
Baltimore 18, Maryland

this MODERN tongue blade.....


Finger depression facilitates control.
Reinforcing fillet in center section.
Convex end of Blade conforms to tongue structure.
Two-bend design eliminates obstructed vision.

Saves your time...Gives better visibility...Facilitates treatment...Pleases the patient...

Ask your supply house
Write for Sample today

Made only by
OVAL WOOD DISH CORPORATION
Tupper Lake, N. Y.
GRAY BAR BUILDING NEW YORK CITY
509 WABASH AVE CHICAGO ILL

OWD
Riteshape
TONGUE BLADE

(Continued from previous page)

SECTION AFFILIATION DESIRED (choose only one)

_____Health Officers	_____Food and Nutrition	_____School Health
_____Laboratory	_____Maternal and Child Health	_____Dental Health
_____Statistics	_____Public Health Education	_____Medical Care
_____Engineering and Sanitation	_____Public Health Nursing	_____Mental Health
_____Occupational Health	_____Epidemiology	_____Unaffiliated

ENDORSER: The endorser of this application must be a Member or Fellow of the American Public Health Association. If you cannot obtain the actual signature, print the name and address so that the Administrative Office may procure it for you.

_____ _____
(signature) (address)

ANNUAL DUES: United States $10.00; elsewhere $11.00 to cover postage. The dues cover use of the services maintained by the Association and monthly receipt of the American Journal of Public Health.

The membership year is January through December. Members joining during the first six months of the year will receive the Journal from January through December. Members joining after July 1 will receive the Journal beginning with July; such applicants may pay one year's dues covering the period July through June, or one-and-a-half year's dues, thus adjusting dues to the membership calendar year.

Dues must be received before applications are reviewed by the Committee on Eligibility.

A remittance for $_____is enclosed. Send bill to_____

DATE_____SIGNATURE_____

● Seal-Hood and Seal-Kap closures positively protect milk *before, during, and after* delivery. Both cap and seal are combined in one sturdy unit that resists all contaminants.

With Seal-Hood and Seal-Kap, the pouring lip of the bottle is completely protected from the moment the bottle leaves the filling bowl. And this full sanitary protection continues in delivery. In the home, these practical, attractive closures open easily and snap tightly back on the bottle. That means freshness right down to the last drop, plus easy handling convenience.

Dairymen, too, find that Seal-Hood and Seal-Kap closures bring savings impossible to gain with ordinary caps . . . *single-operation* savings in time, milk loss and maintenance.

AMERICAN SEAL-KAP CORP.
11-05 44th DRIVE
LONG ISLAND CITY 1, N. Y.

Use Council Accepted

OINTMENT SALUNDEK®

(NEW)

Brand of ZINCHLORUNDESAL

1954 ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION 1955

Now, a strikingly improved formulation incorporating both *mono* and exceptionally antimycotic *di-chloro* salicylanilides, is available in Ointment Salundek (New). This, it is believed, in conjunction with skilled medical management and the patient's cooperation, will *shorten treatment time of Tinea Capitis and simultaneously increase the rate of cure.*

References:

Hopkins, J. C., et al; J. Invest. Dermat., 7, 239-253.
Sullivan, M., and Bereston, E. S.; J. Invest. Dermat., 19, 175-178.
Marsh, W. C.; U. S. Armed F. Med. J.; 1, 1105-7.

Available at all prescription pharmacies.

Tubes of 1 oz. Jars of 1 lb.

Write for literature and a liberal trial supply.

Maltbie

MALTBIE LABORATORIES DIVISION

WALLACE & TIERNAN INC.

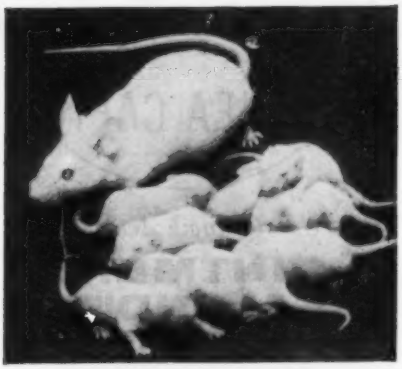
25 MAIN ST., BELLEVILLE 9, NEW JERSEY, U.S.A.

PSA-10

For best results, feed

WAYNE

LABORATORY RATIONS



For maximum results . . . plus constant uniformity and nutritional completeness . . . feed Wayne Laboratory Rations. Available for mice, rats, rabbits, dogs, monkeys, and other laboratory animals. All are backed by almost 20 years of research and experience in the production of laboratory feeds. For further information (including analysis and assays) write for descriptive folder, feed samples, and prices.

MAIL TODAY

ALLIED MILLS, Inc.
Laboratory Food Division
Fort Wayne, Indiana.

Please send me descriptive folder and samples of feed for

_____, _____,
(laboratory animals)
and _____.

Name:_____

Address:_____

City and State:_____

8-1803

GOOD-LITE

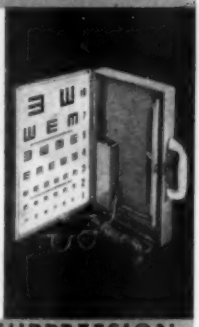
PORTABLE LOW COST VISUAL TESTING EQUIPMENT FOR SCHOOLS

1. VISUAL ACUITY

The Good-Lite Model A Translucent Eye Chart combines built-in fluorescent lighting and a washable plastic eye card for CONTROLLED light. Available in Snellen or Childrens "E" card models. $32.50

2. HYPEROPIA

The Optional Hyperopia Test locates farsightedness quickly and accurately with the addition of +2.00 lenses and a Good-Lite Eye Chart. For use with the Model A (above) or model B Charts (right). The addition of the glasses expands your Good-Lite system to a 2 point test. Hyperopia glasses $8.00



3. MUSCLE SUPPRESSION AND IMBALANCE

Now, with the addition of the Good-Lite Muscle Test you can extend your present system to a 3 point test. Test picks out children with poor eye muscle coordination. Unmistakably "passes" or "fails." MUSCLE IMBALANCE TEST $75.00

THE GOOD-LITE MFG. CO.
7636 W. MADISON, FOREST PARK, ILL.

Pork in the Human Dietary

PORK MAY be looked upon as an important factor in America's general health and well-being. The average intake of pork in America is about 46 pounds of lean pork and 20 pounds of bacon and salt pork per person each year.[1] But America's demand for pork goes further than taste appeal and deeper than mere statistics. Pork makes a valuable contribution to day-in-and-day-out nutrition.

Pork rates among the foremost sources of thiamine. As a source of all other B vitamins and many essential minerals, such as iron and phosphorus, pork meat is considered an important dietary constituent.

Lean pork is virtually completely digestible. Its protein serves to promote growth and aid in the maintenance of tissue cells. Like all high quality protein, that of pork aids in the elaboration of protein hormones, enzymes, and antibodies.

Pork constitutes a valuable part of the daily diet (Table I), and also contributes importantly to the nutrition of the pregnant woman (Table II).

Pork and pork products have won America's favor by their unique combination of economy, palatability, and nutritional value.

---

1. Consumption of Food in the United States, 1909-1952, Washington, D.C., United States Department of Agriculture, Bureau of Agricultural Economics, Agricultural Handbook No. 62, September, 1953.

2. Watt, B.K., and Merrill, A.L.: Composition of Foods—Raw, Processed, Prepared, Washington, D.C., United States Department of Agriculture, Agricultural Handbook No. 8, 1950.

3. Bowes, A. deP., and Church, C.F.: Food Values of Portions Commonly Used, ed. 7, Philadelphia, Anna deP'lanter Bowes, 1951.

4. Cheldelin, V.H., and Williams, R.J.: Studies on the Vitamin Content of Tissues, II, Houston, Texas, University of Texas Publication No. 4237, 1942.

5. Schweigert, B.S.; Nielsen, E.; McIntire, J.N., and Elvehjem, C.A.: Biotin Content of Meat and Meat Products, J. Nutrition 26:65 (July) 1943.

6. Scheid, H.E., and Schweigert, B.S.: The Vitamin B_{12} Content of Meat, Annual Report, An Outline of Research During the Fiscal Year 1953-54, Chicago, American Meat Institute Foundation, Bull. 22, 1955.

7. Estimated on basis of protein content of meats. Sherman, H.C.: Food Products, ed. 4, New York, The Macmillan Company, 1948, p. 155.

8. Recommended Dietary Allowances, Washington, D.C., National Academy of Sciences—National Research Council, Publication 302, 1953.

TABLE I Cooked Pork Chops, Ham, and Pork Sausage
Nutrients and Calories Provided by 3-Ounce Portions

	Protein Gm.	Thiamine mg.	Niacin mg.	Riboflavin mg.	Iron mg.	Phosphorus mg.	Calories
Pork Chops, without bone, cooked, 3 oz.[3]	20	0.71	4.3	0.20	2.6	200	284
Ham, without bone, cooked, 3 oz.[3]	20	0.45	4.0	0.20	2.6	202	338
Pork Sausage, cooked, 3 oz.[3]	14	0.42	2.8	0.20	2.1	139	396

3.5 ounces of fresh pork loin, equivalent to approximately 3 ounces of cooked loin, contains 0.47 mg. pantothenic acid;[4] 0.10 mg. pyridoxine;[4] 0.005 mg. biotin;[5] 36 mg. inositol;[4] 0.08 mg. folic acid;[4] 0.0027 mg. vitamin B_{12};[6] 63 mg. chlorine;[7] 0.1 mg. copper;[7] 20 mg. magnesium;[7] 280 mg. potassium;[7] 70 mg. sodium;[7] and 0.01 mg. manganese.[7]

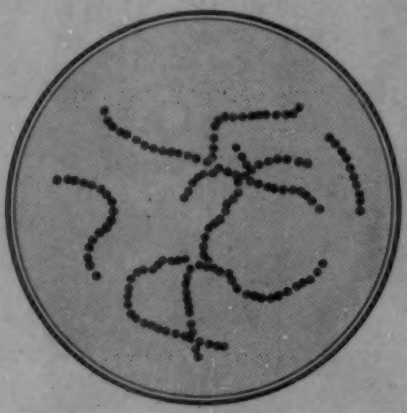
TABLE II Nutrients and Calories of Cooked Pork Chops (3 ounces) Expressed as Percentages of Recommended Daily Dietary Allowances[8]

Percentages of Allowances for:	Protein	Thiamine	Niacin	Riboflavin	Iron	Phosphorus	Calories
Girls, 13-15 years of age; weight, 108 lb.; height, 63 inches.	25%	55%	33%	10%	17%	15%	11%
Women, 25 years of age; weight, 121 lb.; height, 62 inches.	31%	59%	36%	14%	22%	17%	12%
Pregnant Women (3rd trimester)	25%	47%	29%	10%	17%	13%	11%

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago... Members Throughout the United States

DIFCO



A
S
T
O

Difco reagents for the diagnosis of

Group A Streptococcal Infections

- RHEUMATIC FEVER
- GLOMERULONEPHRITIS

ANTISTREPTOLYSIN *O* TITERS (ASTO) and their relation to pathological conditions in Group A streptococcal infections have established the importance of this determination as a routine clinical test.

Bacto-Streptolysin O Reagent- a dehydrated, standardized and stable reagent requiring only rehydration with distilled water. Antistreptolysin *O* titers have been impractical for routine diagnosis because of the difficulties in preparing the reagent. Bacto-Streptolysin *O* Reagent is a standardized preparation permitting the routine performance of this diagnostic test in all clinical laboratories.

Bacto-ASTO Standard- an antiserum titred in Todd units for use as a control in the determination of antistreptolysin *O* titers.

Descriptive literature sent upon request

DIFCO LABORATORIES

DETROIT 1, MICHIGAN